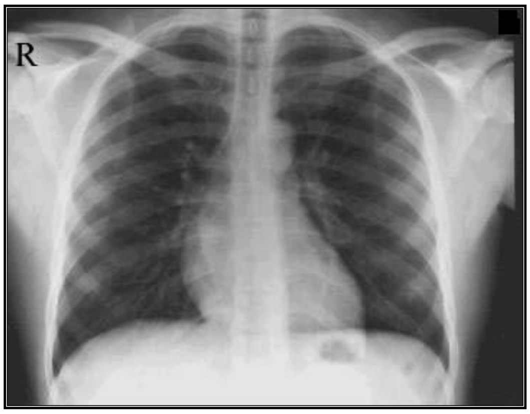
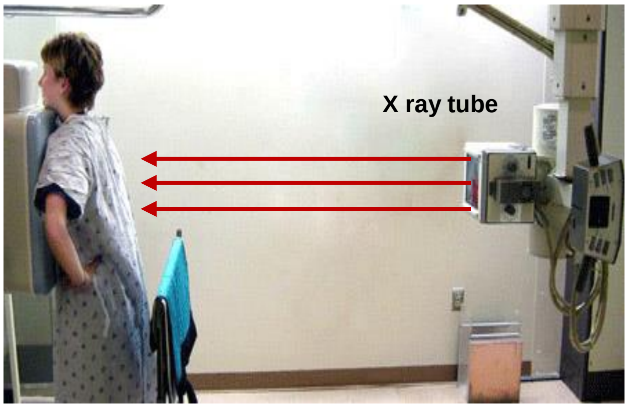
Heart X ray



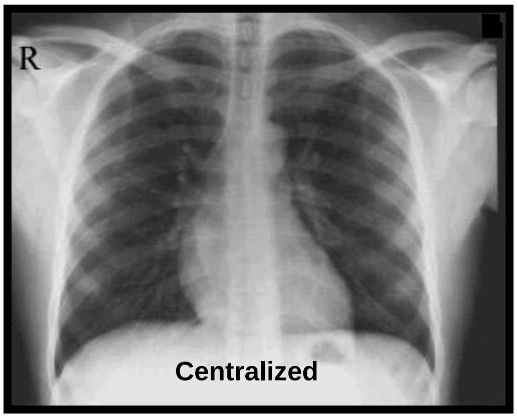


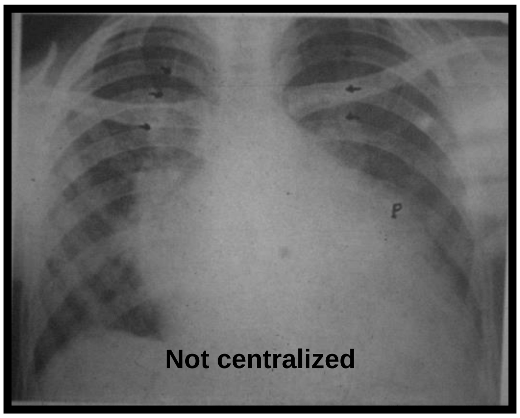
1. Plain X ray (no contrast is present)

2. Postero-anterior view

The patient chest is flat against the screen while the X ray tube is directed to the back.

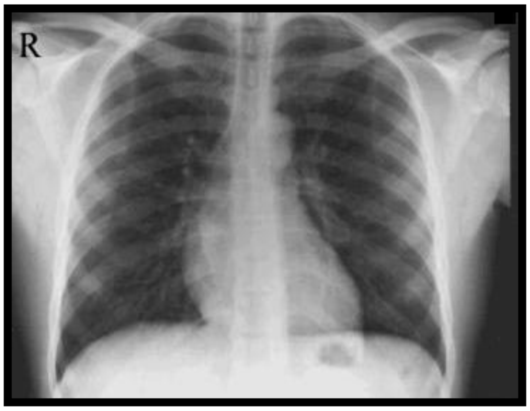
3. Positioning : patient centralization : 2 clavicles at the same horizontal level.



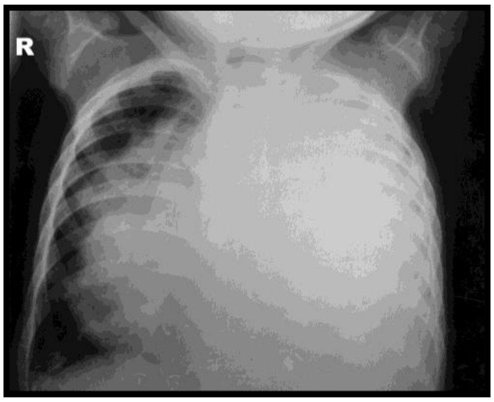


4. Costophrenic angles on both sides

The two-costophrenic angles (recesses) are the lowermost parts of the pleural cavity (the angles between the diaphragm and costal margins). Normally they are translucent; their obliteration indicates fluid collection (pleural effusion).



Free angles



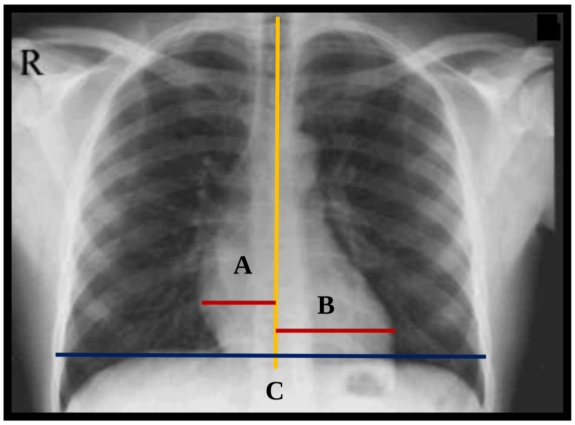
Obliterated left angle

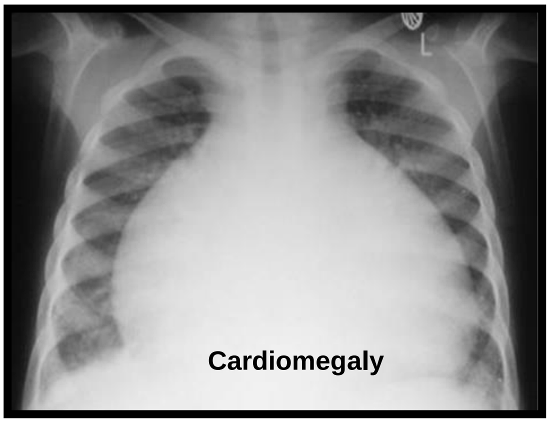
5. Cardio-thoracic ratio

It is the maximum width of the cardiac shadow divided by the maximum chest width

- Maximum cardiac width (A + B)
- Maximum chest width (C)

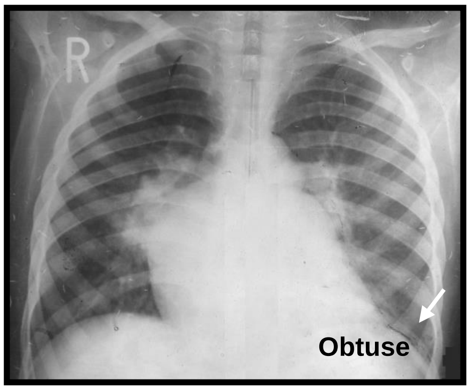
Normally the cardio-thoracic ratio is less than ½ if the ratio is more than ½, cardiomegaly is diagnosed.



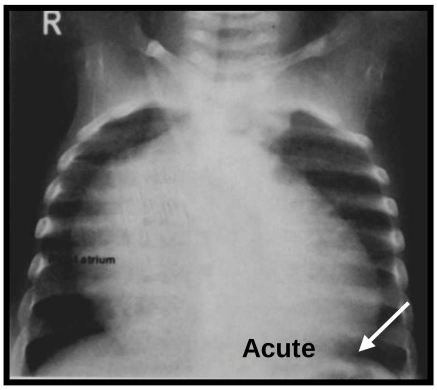


6. Cardiophrenic angle on the left side

It is the angle between the left copula of the diaphragm and left border of heart.
If the heart is enlarged with obtuse angle ➔ left ventricle dilatation.
If the heart is enlarged with acute angle➔ right ventricle dilatation.

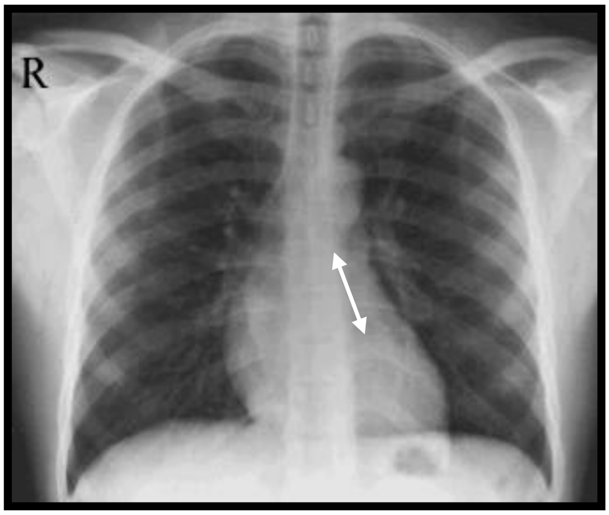


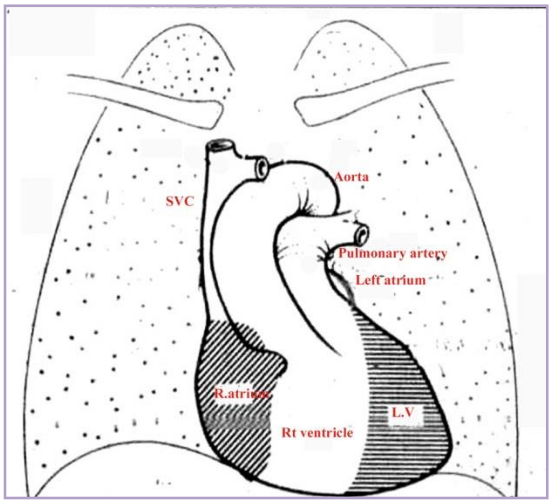
Left ventricle dilatation



Right ventricle dilatation

7. & 8. The left and right cardiac borders in details

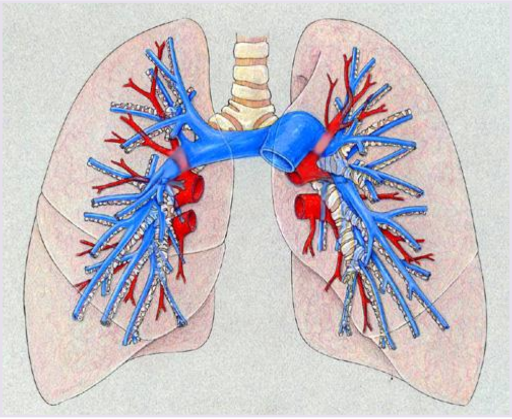


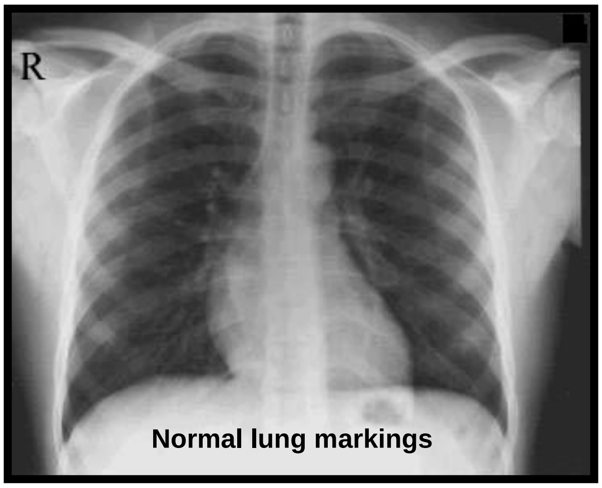


The waist of the heart is a concavity or constriction on the left cardiac border opposite the 2nd and 3rd space, formed by normal contour of the pulmonary artery and left auricle.

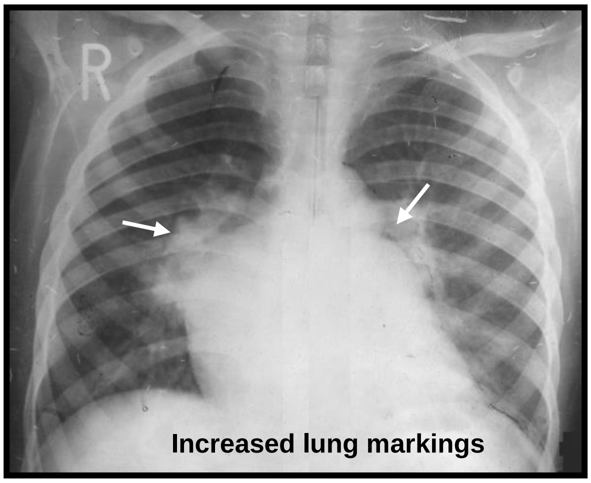
9. Lung fields: bronco-vascular markings

Shadows of the pulmonary blood vessels and bronchi give the characteristic bronchovascular markings, which are more prominent at the hilum and diminish as we reach the periphery of the lungs.





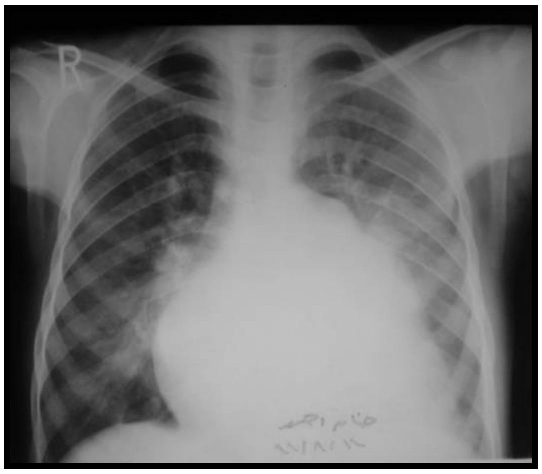
Normal lung markings

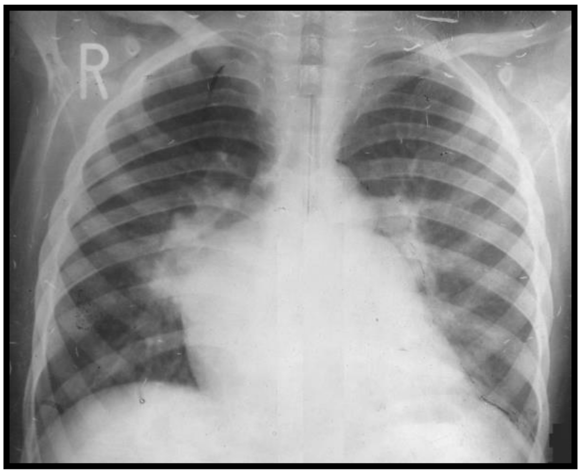


Increased lung markings

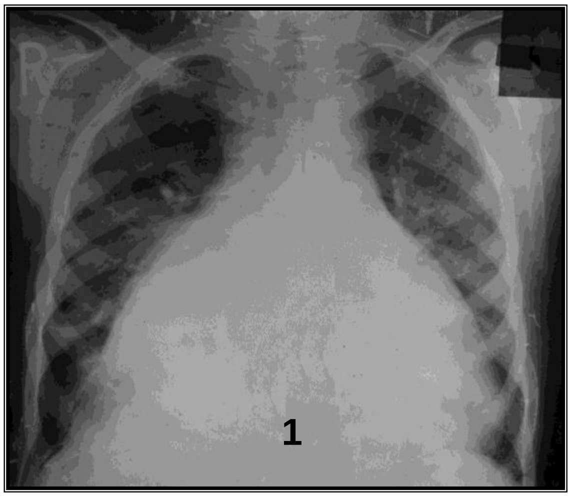
10. Diagnosis: Cardiomegaly

- **Cardiomegaly without characteristic shape (simple cardiomegaly)**
  Left side chambers enlargement or
  Left and right side chambers enlargement





- **Cardiomegaly with characteristic shape**
  1. Flask shaped heart (Pericardial effusion)
  2. Egg shaped heart (Transposition of great vessels)
  3. Boot shaped heart (Fallot tetralogy)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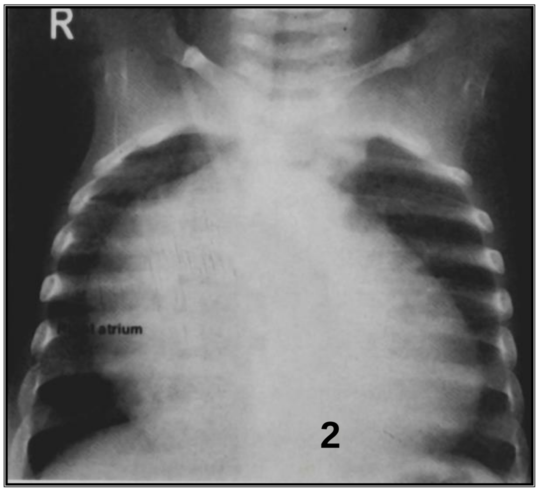

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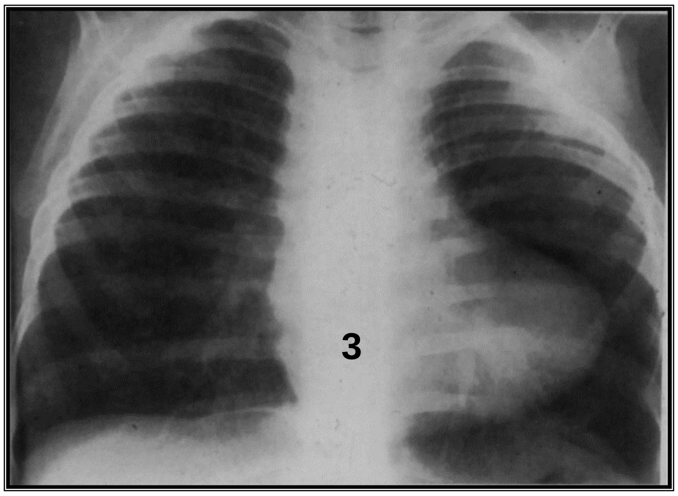

3

Exam system

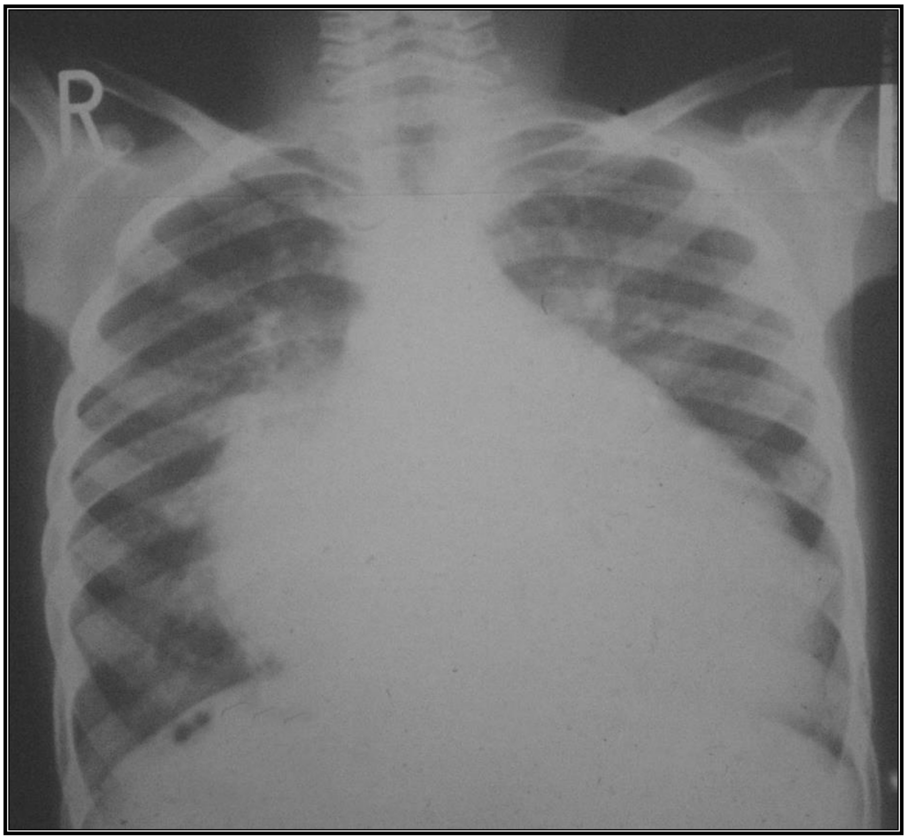
You will be given a short scenario about the disease, shown in the x ray (read it carefully, it is diagnostic). Then you will be asked:-

1. What is the **Type** of the x ray (plain or contrast)
2. What is the **View** (postero-anterior or lateral)
3. Mention **3 or 4 Characteristic** radiological findings.
4. Mention **full diagnosis**
5. Answer a short **related question**

Cardiomegaly without shape

Scenario for any X ray with cardiomegaly without shape:-

Infant presenting with tachypnea, tachycardia and enlarged tender liver



Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

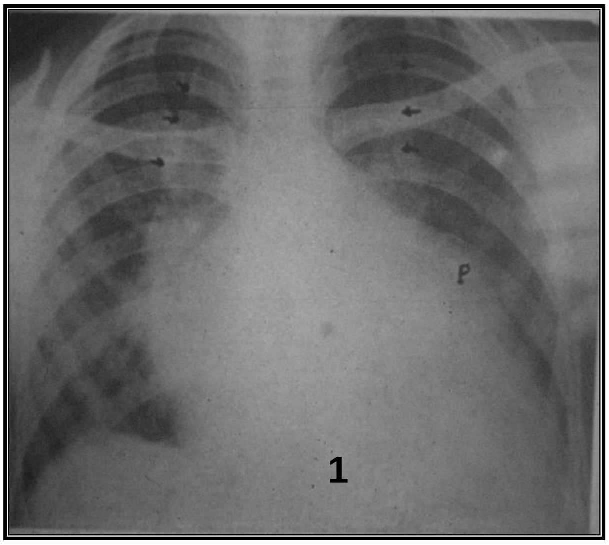
1. Cardio-thoracic ratio increased about 80% denoting cardiomegaly.
2. Cardiophrenic angle on the left side is obtuse (left ventricle dilatation).
3. Straight left cardiac border (waist obliteration)(mitralized heart): dilated left atrium and pulmonary artery.
4. Bulging right cardiac border (right atrium dilatation).
5. Increase pulmonary vascular markings (hilar congestion).

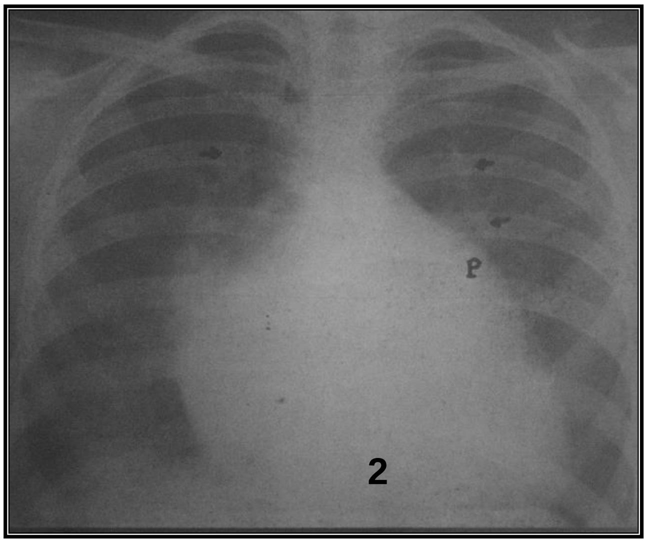
Diagnosis

Cardiomegaly due to enlargement of left ventricle, left atrium, pulmonary artery and right atrium for differential diagnosis (most probably due to rheumatic heart disease)

Mention 2 lines of treatment for this case?

1. Diuretics e.g. furosemide
2. Inotropes e.g. Digitalis
3. Vasodilators : Captopril





Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

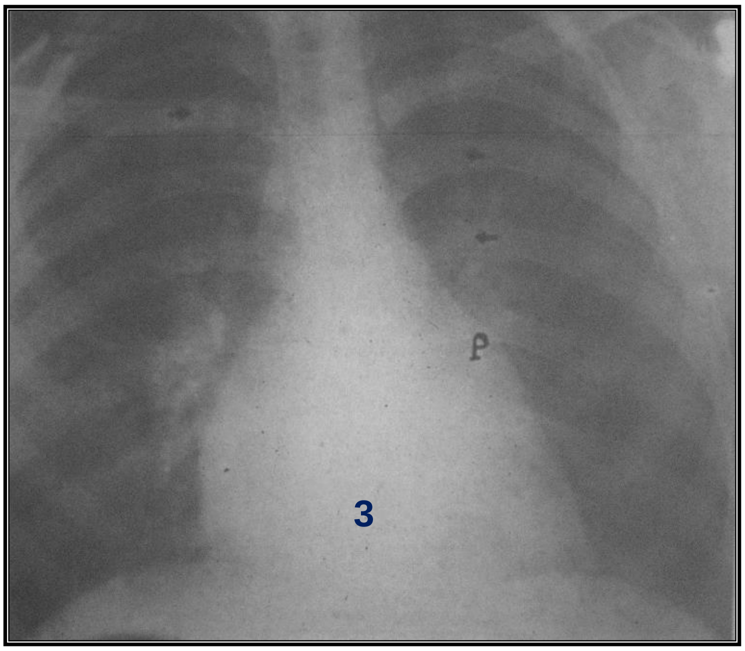
1. Cardio-thoracic ratio increased about 70% in (1, 2) 60 % in (3) denoting cardiomegaly.
2. Cardiophrenic angle on the left side is obtuse in 2, 3 (left ventricle dilatation). Not visualized in 1
3. Straight left cardiac border (waist obliteration)(mitralized heart): dilated left atrium and pulmonary artery.
4. Bulging right cardiac border (right atrium dilatation).(normal right border in 3)
5. Increase pulmonary vascular markings (hilar congestion).

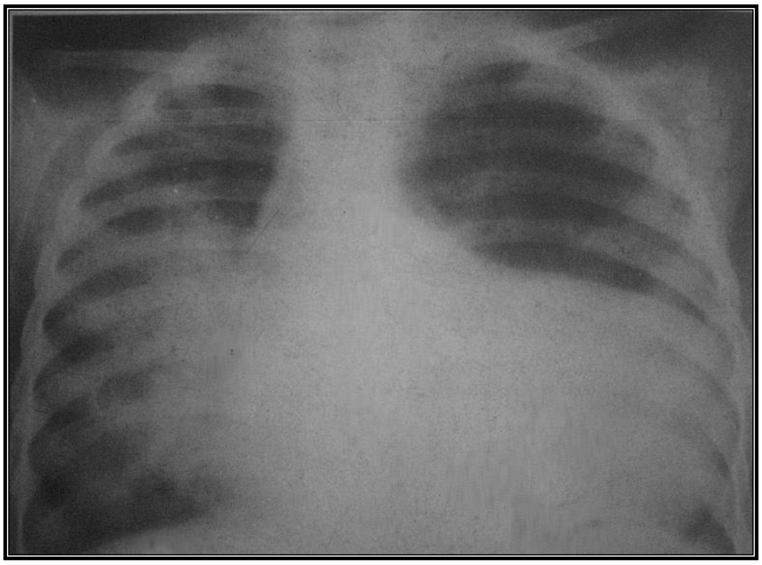
Diagnosis

Cardiomegaly due to enlargement of left ventricle, left atrium, pulmonary artery and right atrium (in 3normal right atrium) for differential diagnosis.

Mention 2 causes for this case?

1. Rheumatic heart disease
2. Congenital heart disease





Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

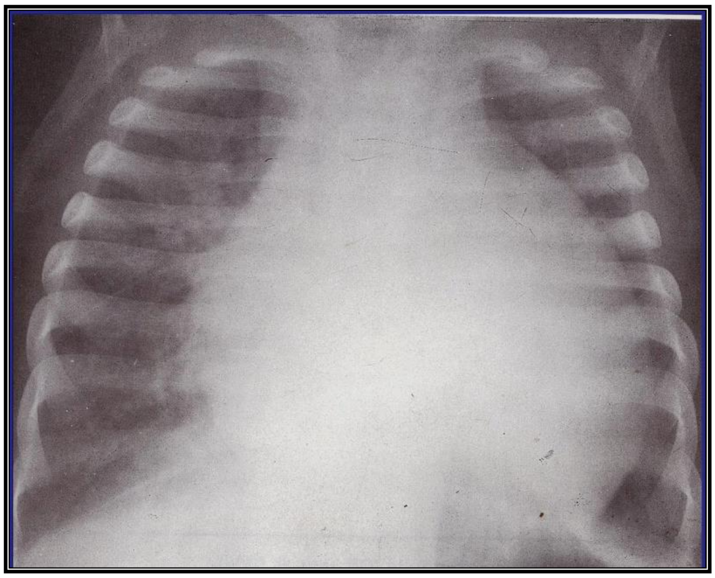
1. Cardio-thoracic ratio increased about 75%
2. Cardiophrenic angle on the left side is acute (right ventricle dilatation).
3. Shelving of the left cardiac border.
4. Heterogeneous opacity in the middle and lower third of the right lung (pneumonia) overlapping most of the right cardiac border.

Diagnosis

Cardiomegaly due to enlargement of right ventricle for differential diagnosis and Right side pneumonia.

Enumerate 2 essential investigations for this case?

1. Echocardiography
2. ECG



Characteristic radiological findings

1. Cardio-thoracic ratio increased about 70%
2. Cardiophrenic angle on the left side is acute (right ventricle dilatation).
3. Bulging of the right cardiac border (right atrium dilatation).
4. **The heart is globular in shape.**
5. Increased bronchovascular markings.

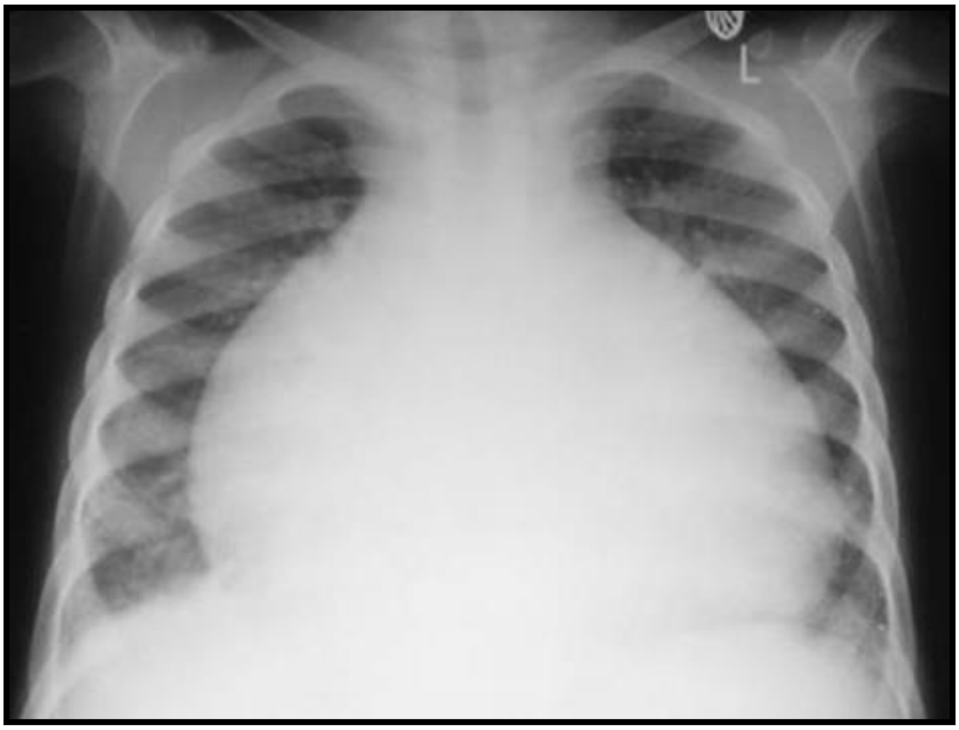
Diagnosis

Generalized enlargement of cardiac chambers (globular shape heart)

Cardiomegaly with shape: (flask, egg, boot)

Flask shaped heart: pericardial effusion

Scenario: A child presenting with dyspnea, chest pain and fever



Type: plain X ray chest
View: postero-anterior
Characteristic radiological findings.

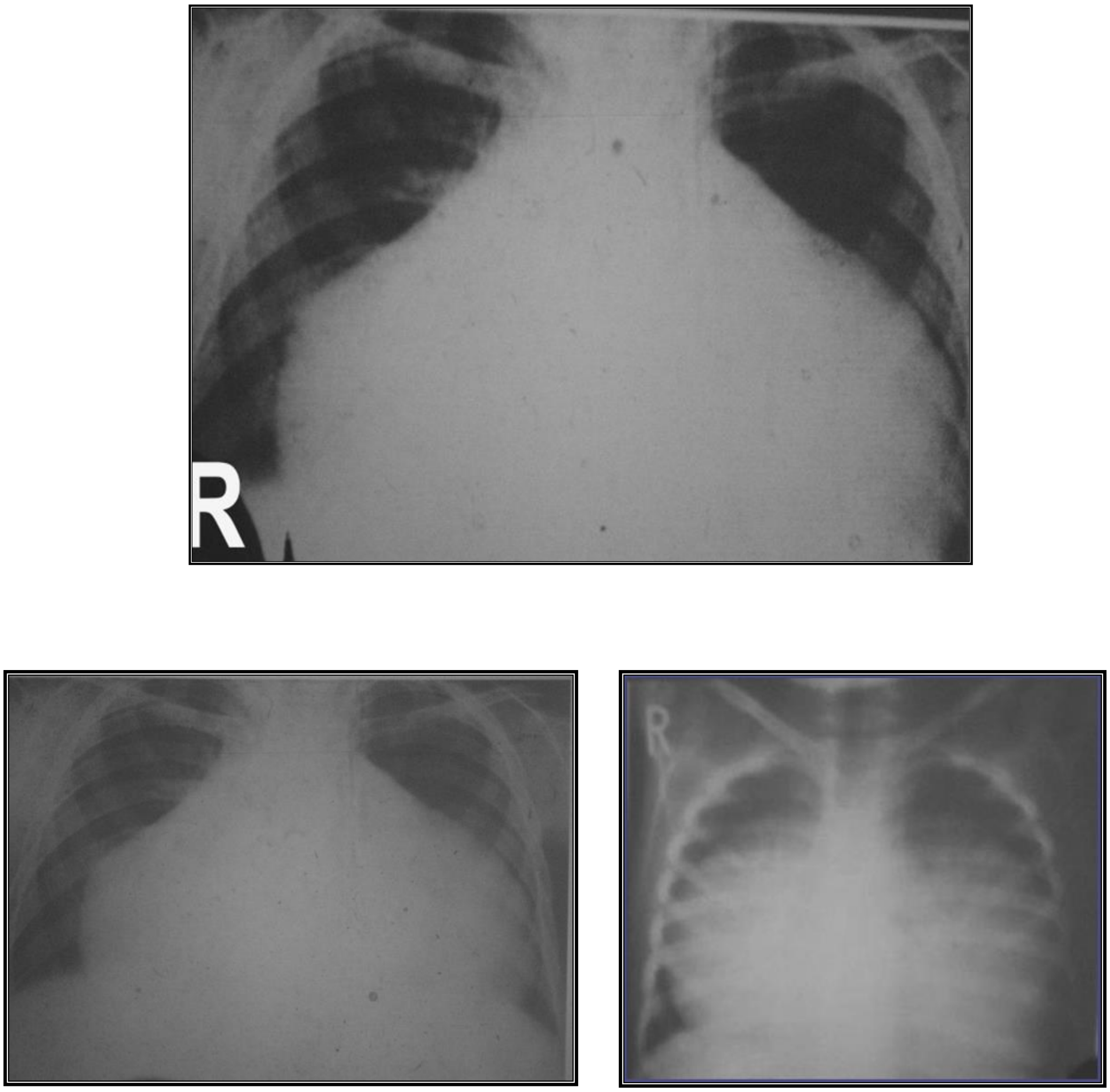
1. Marked increase in the cardio-thoracic ratio about 85 % in denoting huge cardiomegaly.
2. Symmetrical bulge of the left and right cardiac borders
3. The borders are well defined (stenciled).
4. Loss of characteristic cardiac contour (it became flask like)
5. Broad cardiac base.
6. Normal pulmonary vascular markings.

Diagnosis

Huge Cardiomegaly in the form of (flask shaped) most probably due to pericardial effusion

Enumerate 2 causes for this case? : The most important question

1. Suppurative pericarditis
2. Collage vascular disorder e.g. SLE
3. TB pericarditis



Flask shaped hearts

Other questions that may be asked about pericardial effusion

Mention 2 clinical features

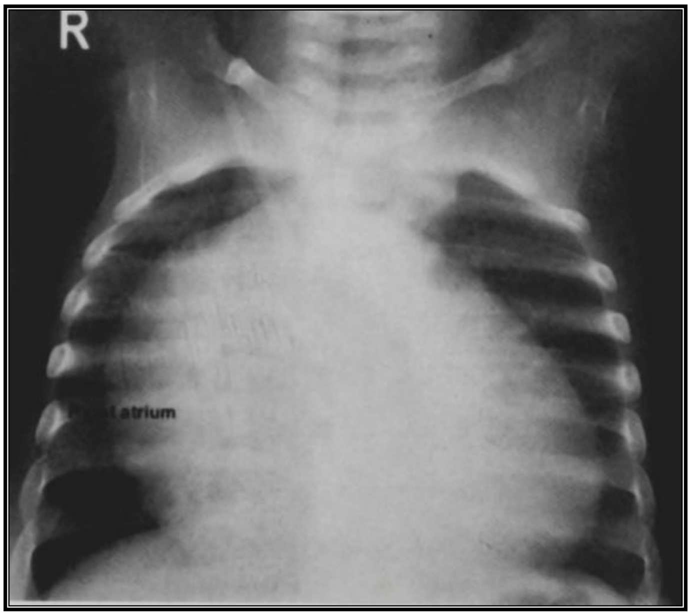
1. Distant heart sound
2. Dullness outside the apex
3.

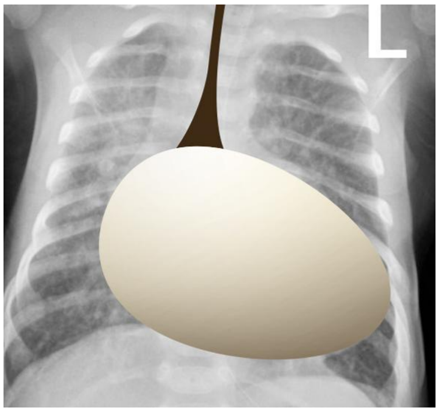
Mention 2 investigations

1. Echocardiography
2. Pericardiocentesis and fluid examination (culture and sensitivity)

EGG shaped heart: Transposition of great arteries

Scenario: Neonate presents with cyanosis at birth





Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

1. Cardio-thoracic ratio increased about 80% denoting cardiomegaly.
2. Cardiophrenic angle on the left side is acute (right ventricle dilatation).
3. Marked bulge of the right border of the heart (right atrium dilatation).
4. Narrow cardiac base
5. Increase in the pulmonary vascular markings.

Diagnosis

Cardiomegaly in the form of (Egg on side) most probably due transposition of great arteries

Enumerate 2 complications for this case? : The most important question

1. Heart failure
2. Recurrent chest infections
3. Infective endocarditis

Other questions that may be asked

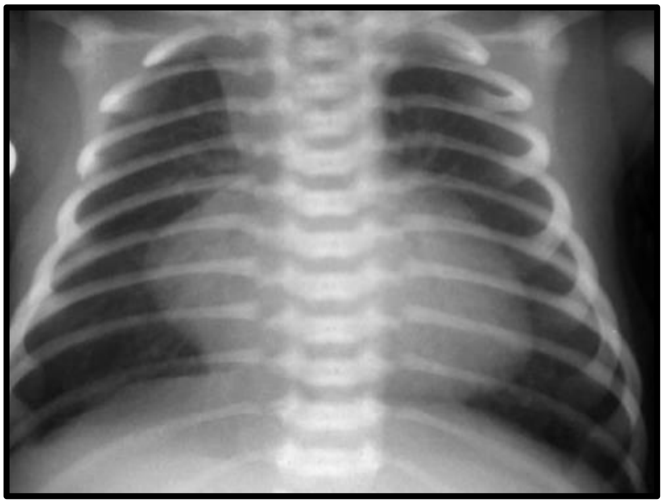
What is the immediate action at birth?

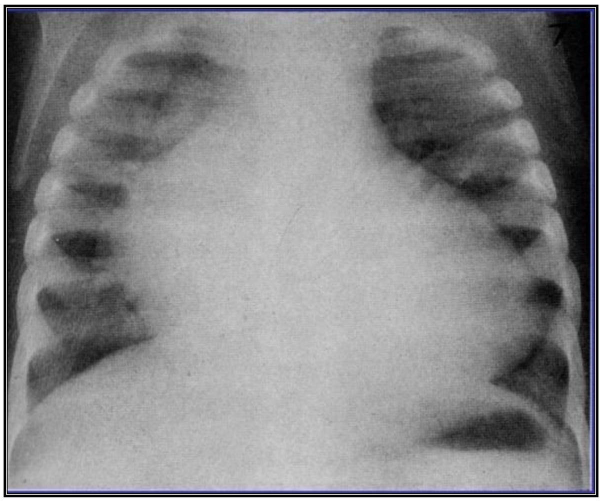
1. Prostaglandin infusion
2. Prepare for Rashkind's procedure : balloon atrial septostomy

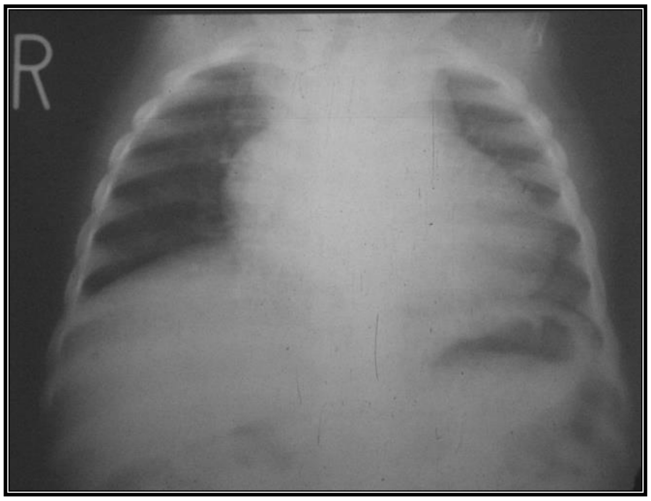
Enumerate 2 investigations

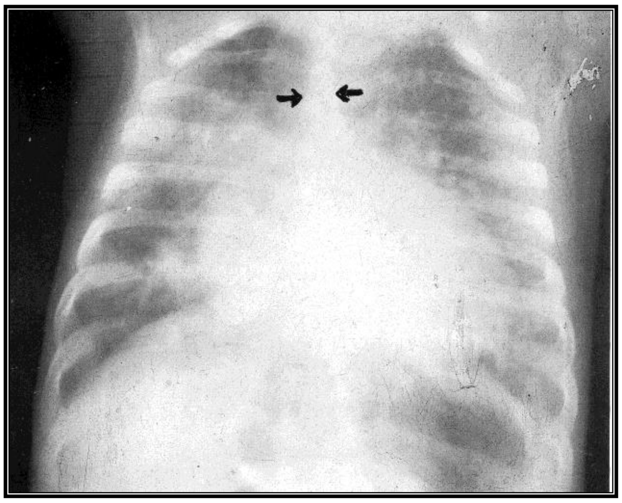
1. Echocardiography
2. ECG

Other examples for TGA



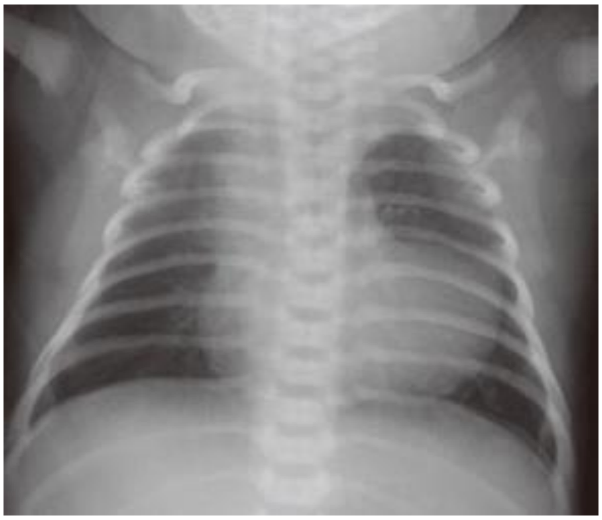


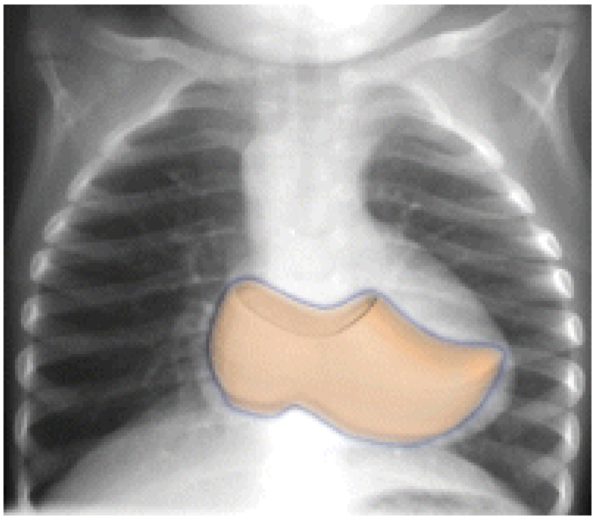


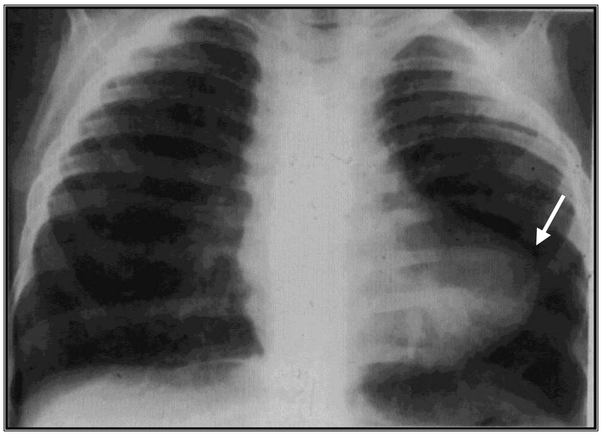


Boot shaped heart: tetralogy of Fallot

Scenario: Infant starts to develop cyanosis at the age of 5 months







Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

1. Cardio-thoracic ratio is normal
2. Cardiophrenic angle on the left side is acute (right ventricle hypertrophy)
3. Uplifted cardiac apex(Rt ventricle hypertrophy)
4. Exaggerated waist (pulmonary artery stenosis)
5. Decreased pulmonary vascular markings(lung oligemia)

Diagnosis

Boot shaped heart (Coeur en saboau): tetralogy of Fallot

Mention one complication and one line of its treatment:

Hypercyanotic spells
Treated by

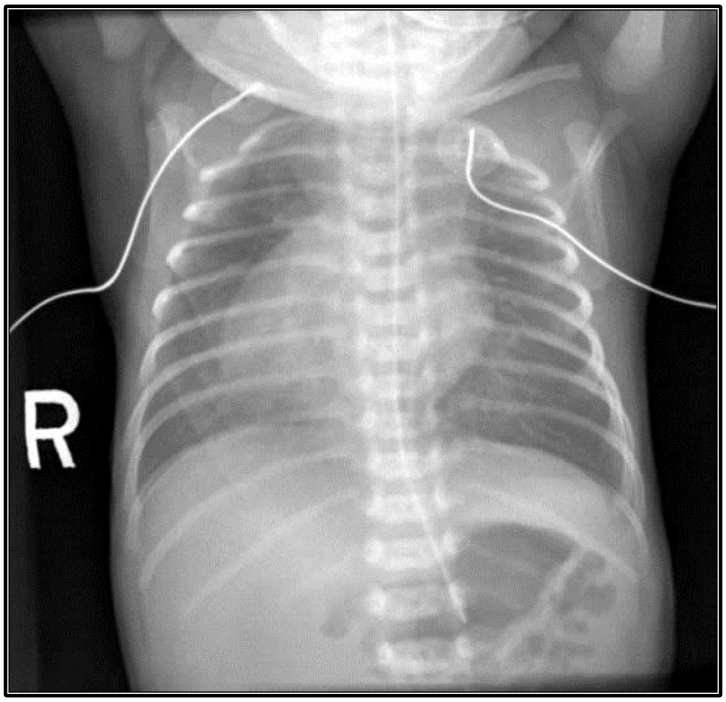
1. Sodium bicarbonate
2. Beta blockers or alpha agonist
3. Oxygen

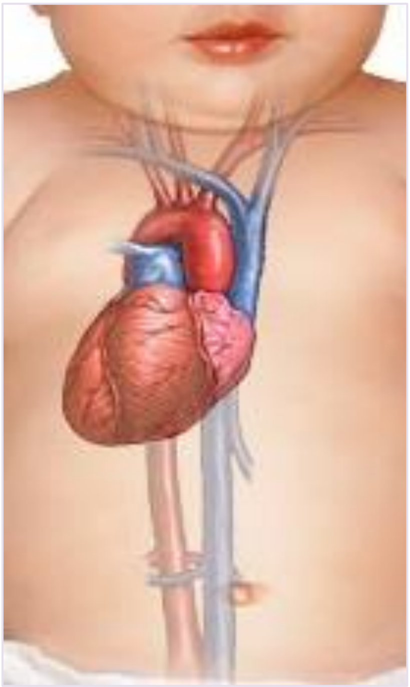
Other complications of tetralogy of Fallot

1. Cerebral abscess
2. Cerebral strokes
3. Infective endocarditis

Isolated Dextrocardia

Scenario: Infant presenting with recurrent chest infections





Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

1. Cardio-thoracic ratio is increased (mild)
2. Abnormal site of the heart on the right side
   - ○ The cardiac apex is on the right side
   - ○ The left border is formed by right atrium while the right one is formed by pulmonary artery, left atrium and left ventricle
3. Normal position of the stomach and liver (gastric air bubbles on the left side while the liver shadow is on the right side)

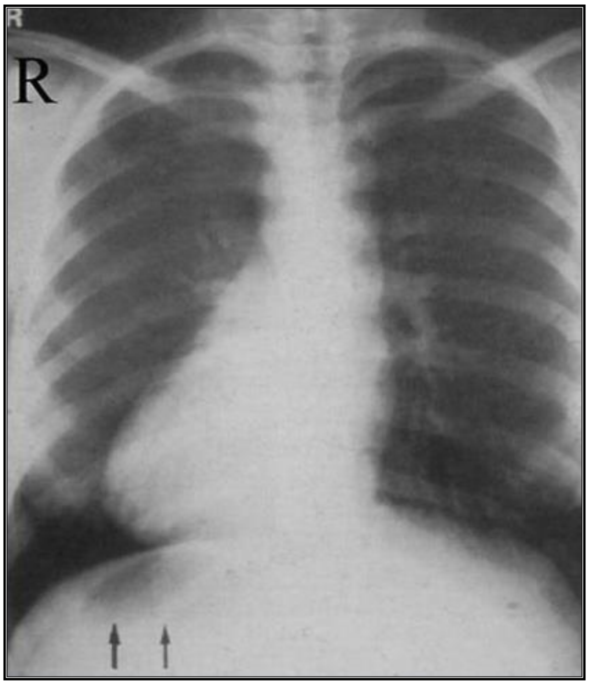
Diagnosis

Isolated dextrocardia most probably associated with congenital heart disease (the infant presents with recurrent chest infections)

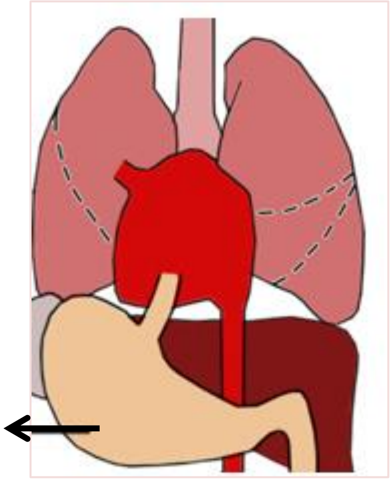
Mention one complication and one line of its lines of treatment:

It is commonly associated with congenital heart disease, so, it may present with any complications of congenital heart disease

Situs inversus

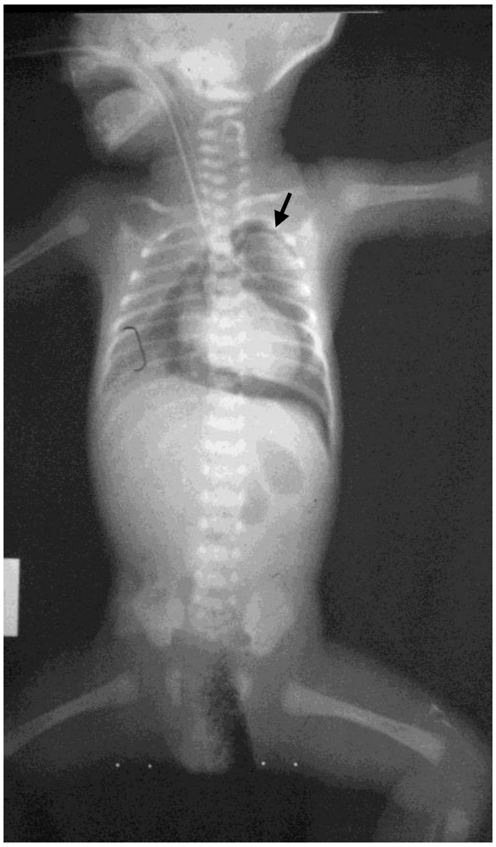


The same comment like isolated dextrocardia but the liver is present on the left side while the and stomach (gastric air) is present on the right side



Pneumopericardium, RDS and left side pneumothorax

Neonate presents with sudden deterioration of vital signs



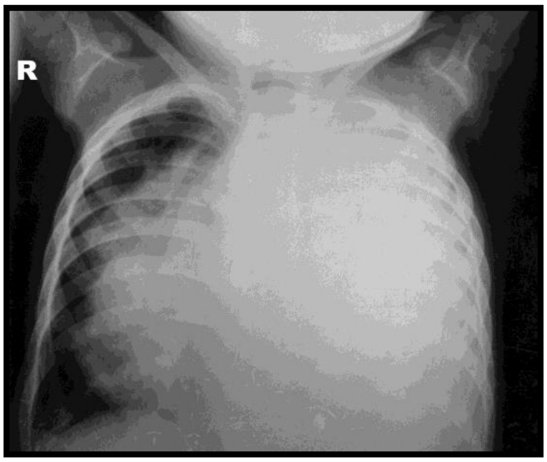
1. There is area of jet black translucency surrounding the cardiac shadow (air in the pericardial sac)
2. Homogenous opacity on the Rt lung: white lung: RDS
3. Thin rim of Jet black translucency seen on the apex of left lung pushing the lung medially (Left side pneumothorax) : arrow
4. Endotracheal tube is present

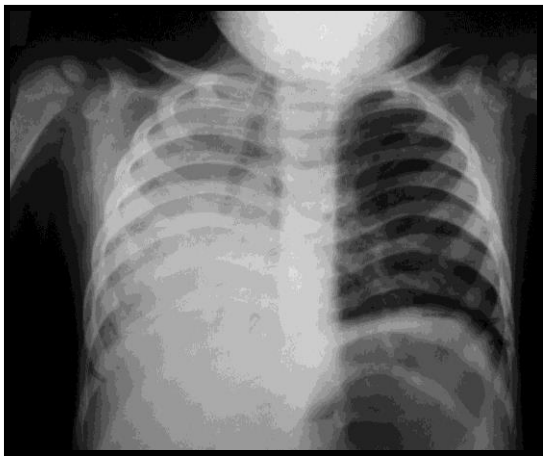
Chest X ray

P: plain X ray - P: postero-anterior view - **P**: patient is centralized
T: trachea: central or shifted
A: costophrenic angle on the same side of the lesion : free or obliterated
L: lesion: opacity (homogenous or heterogeneous) or hypertransluscency

I- Unilateral opacity

. Pleural effusion (massive or moderate):
. Lung collapse (total or lobar collapse)
. Lobar pneumonia



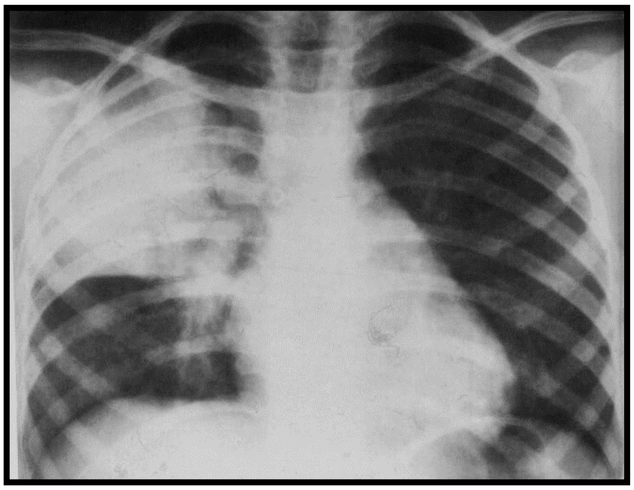


Pleural effusion

T : Shifted to the OPPOSITE side of the lesion.
A: Costophrenic angle on the same side of the lesion is Obliterated.
L: The opacity is HOMOGENOUS.

Lung collapse

T : Shifted to the SAME side of the lesion.
A: Costophrenic angle on the same side of the lesion is free.
L: The opacity is HOMOGENOUS.



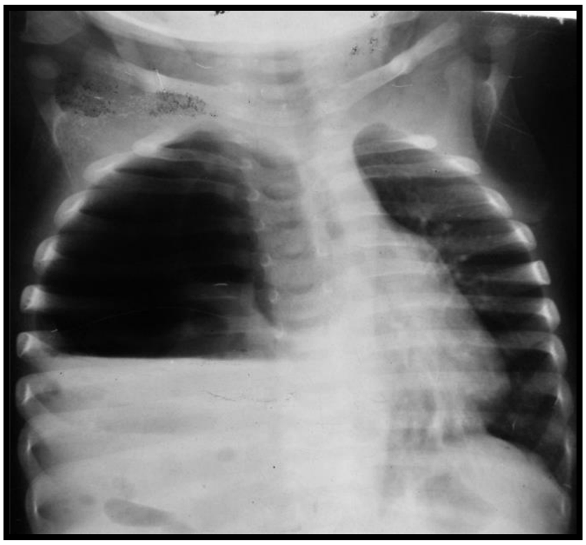
Lobar pneumonia

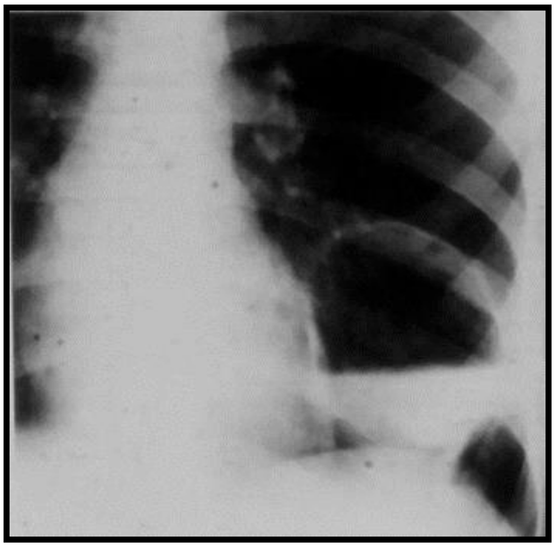
T: CENTRAL
A: Costophrenic angle on the same side of the lesion is free
L: The opacity is HETEREGNOUS (may be homogenous initially)

II- Air fluid level.

. Hydro or pyopneumothorax

. Lung abscess (in association with pneumonia or effusion or both)





Hydro or pyopneumothorax

T: Shifted to the OPPOSITE side of the lesion

A: Costophrenic angle on the same side of the Lesion is OBLITERATED.

L: Air and fluid are extended along the whole affected hemithorax

Lung abscess

T : CENTRAL

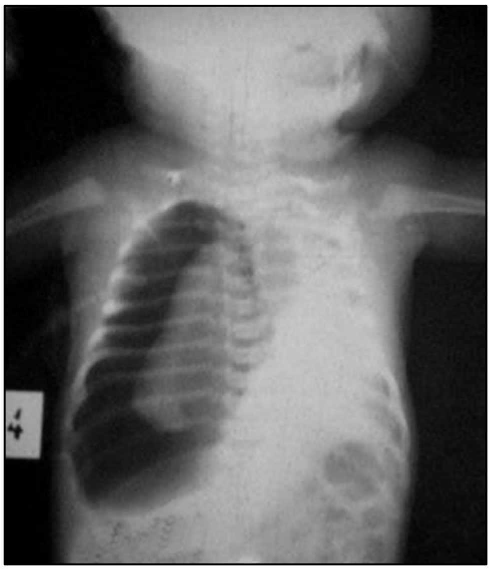
A: Costophrenic angle on the same side of the lesion is free (may be obliterated)

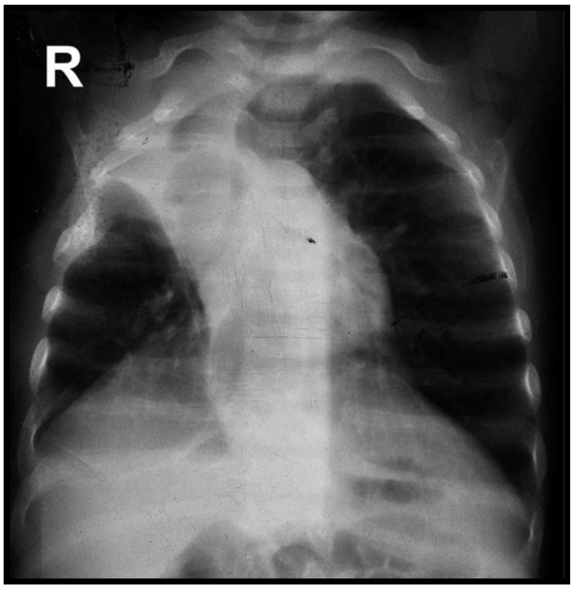
L: Air (black) and fluid (white) are within a localized wall (abscess wall)

III- Unilateral translucency

. Pneumothorax

. Emphysema (congenital lobar)





Pneumothorax

T: Shifted to the OPPOSITE side of the lesion

L: The hyper translucent hemithorax is completely jet black i.e. absence of any lung markings

The collapsed lung appears as opacity

Emphysema??

T: Shifted to the OPPOSITE side of the lesion

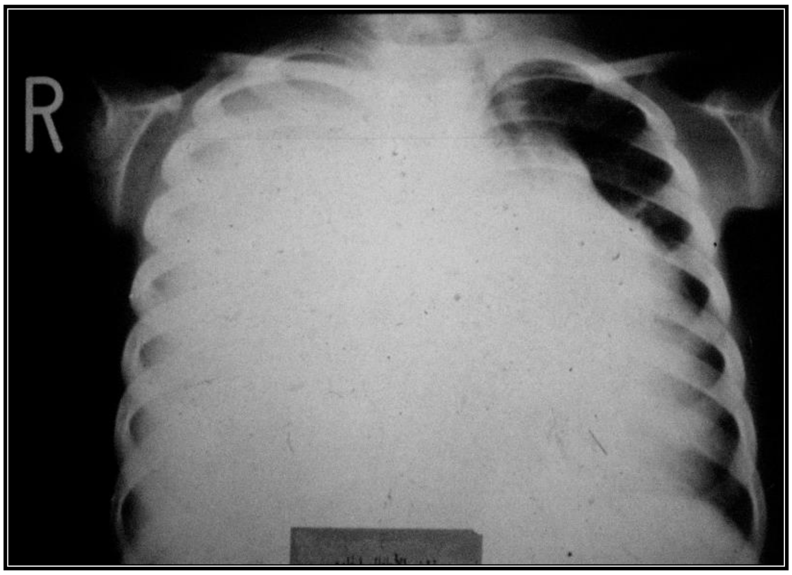
L: The hyper translucent hemithorax shows decreased lung markings

The lung is intact (not collapsed)

Pleural effusion

Scenario: Infant presenting with chest pain, fever and respiratory distress

1



Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings. ALT

1. The right (left in 2) costophrenic angle is obliterated by homogenous opacity.
2. The opacity occupies all the right (left in 2) hemithorax.
3. The mediastinum (the tracheal air column and heart) is shifted to the opposite side of the lesion (left side).(right side in 2)

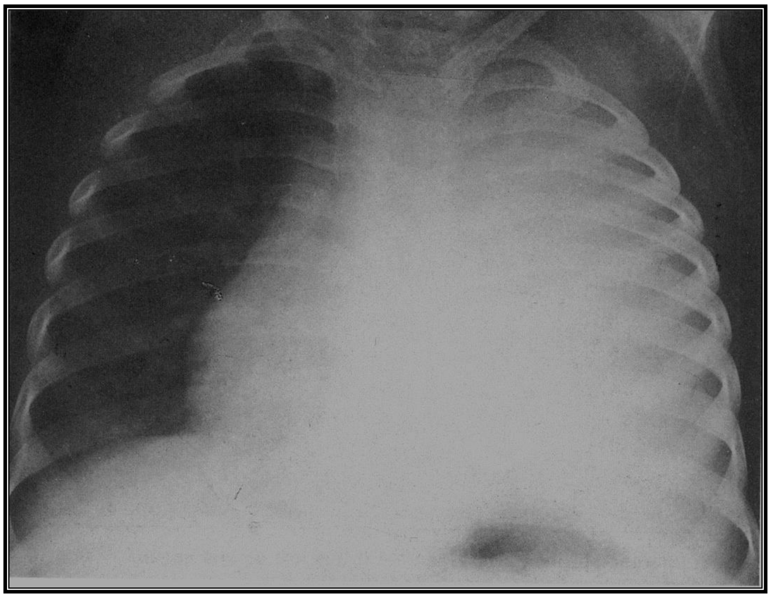
Diagnosis

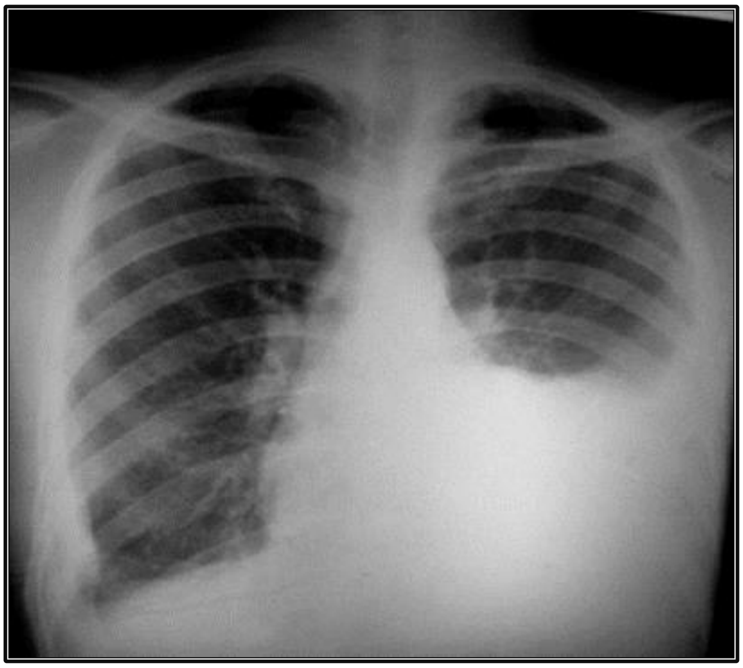
Massive right side pleural effusion (1)
Massive left side pleural effusion (2)

Mention 2 lines of treatment for this case

1. Underwater seal system
2. Antibiotics e.g. Oxacillin

2





Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings. AL

1. The left costophrenic angle is obliterated by homogenous opacity
2. The opacity is present in the left hemithorax with concave upper border rising to the axilla.
3. Shifting of the the mediastinum (the tracheal air column and heart) to the opposite side of the lesion (RT side).

Diagnosis

Left side moderate pleural effusion

Other questions may be asked about pleural effusion

Mention another important investigation for this case?

Thoracocentesis, then (Examination of the fluid, culture and sensitivity).

Enumerate 2 possible chest signs may be found in this case?

1. Dullness on percussion on the ……
2. Diminished breath sounds on the ………..
3. Limited chest expansion on the …..

Enumerate 2 causes for this case?

1. Pneumonia: Staphylococcus, Pneumococcal, H. influenza
2. Subphrenic abscess

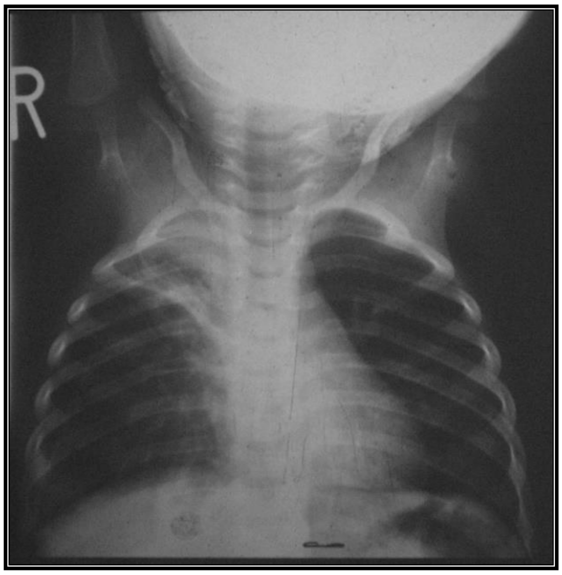
What are the complications of this condition?

1. Pyopneumothorax
2. Chronicity. Fibrosis .
3. Systemic complication e.g. septicemia

Lobar pneumonia

Scenario: 5 year-old child with fever, cough and respiratory distress

1



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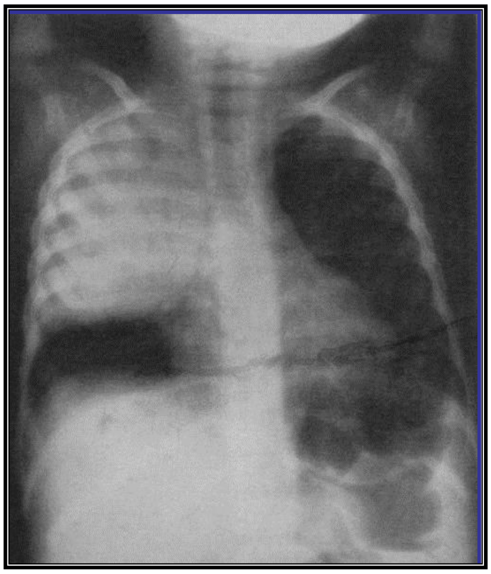

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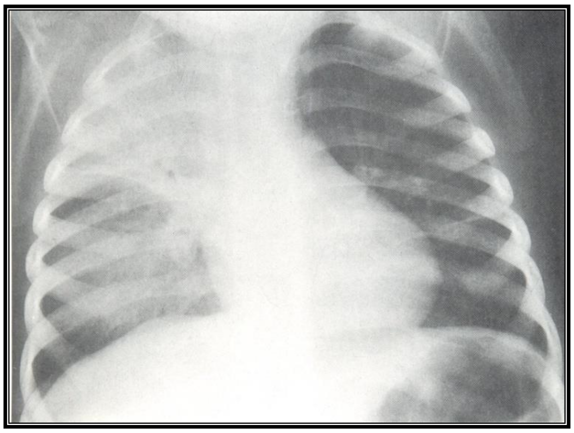

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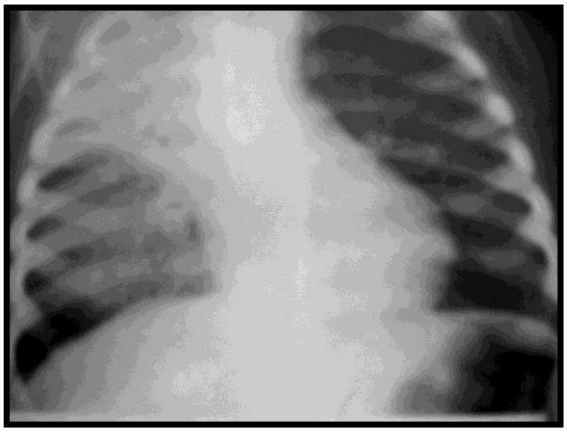


Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings. ALT

1. There is **heterogeneous** opacity
   In (1) triangular in shape on the apical part of the right lung.
   In (2) on the upper 2/3 of the right lung.
   In (3) on the upper lobe of the right lung.
   In (4) upper and middle lobe of the right lung.
2. Costophrenic angles are free on both sides.
3. Central mediastinum

Diagnosis

Right side lobar pneumonia

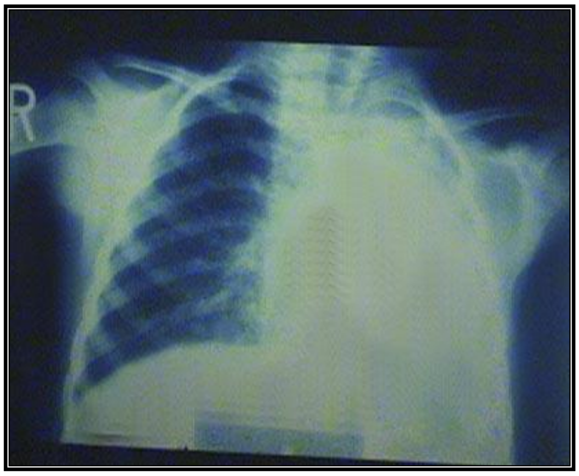
Mention 2 causes (2 organisms) for this condition?

1. Mycoplasma
2. Chlamydia
3. TB

Massive lung collapse

Lung collapse scenario: 2 year- old infant with sudden onset of chocking, cough followed by respiratory distress

1



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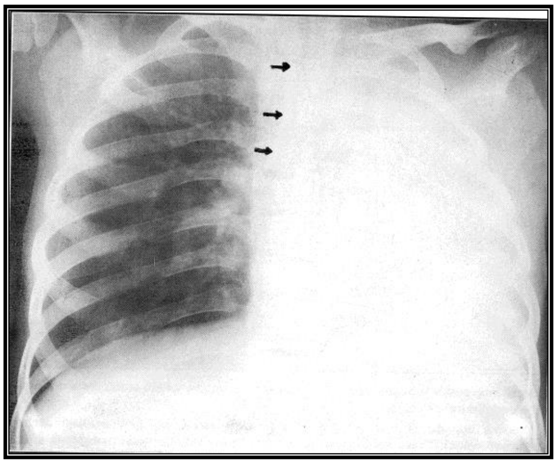

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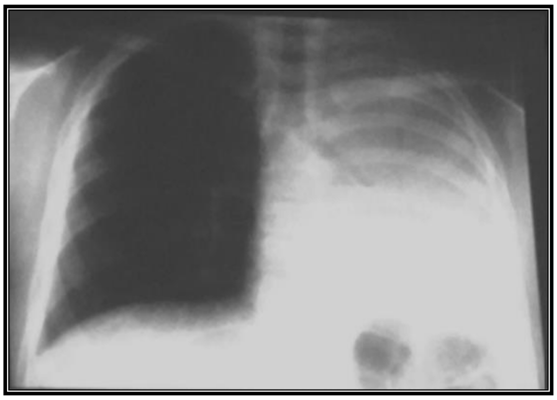

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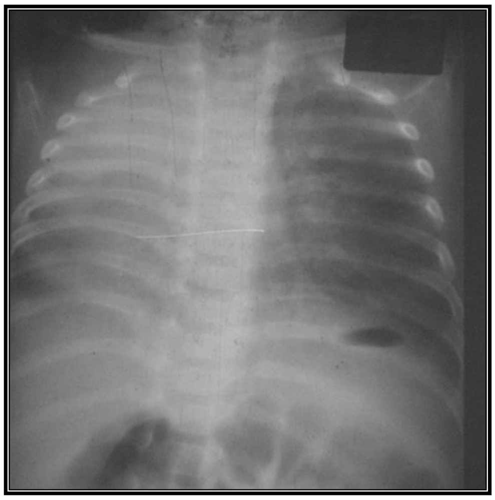


Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings. ALT

1. There is **homogenous** opacity occupying all the (left hemithorax in 1, 2, 3) (the right hemithorax in 4).
2. The mediastinum (heart and tracheal air column) is shifted to the same side of the lesion
3. The right side is hyper translucent (compensatory emphysema) in 3

Diagnosis

Left side massive lung collapse (1, 2, 3)

Right side massive lung collapse (4)

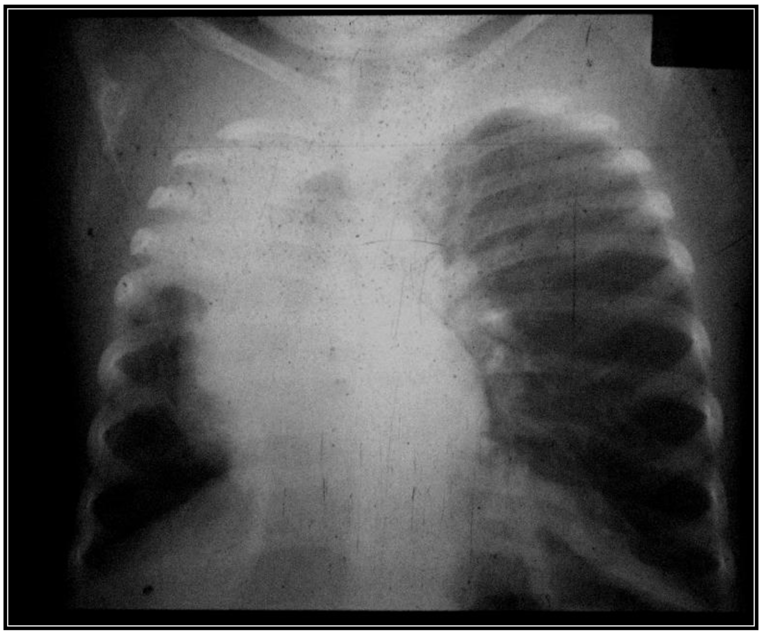
What is the possible cause? Foreign body aspiration

Mention another important investigation for this case? Bronchoscopy, CT chest

What is the most important line of treatment in this case? Bronchoscopy, oxygen

Enumerate 2 possible chest signs may be found in this case? Absent breath sounds over the ……… - dullness on percussion over the ……

Lobar collapse: very important



Type: plain X ray chest

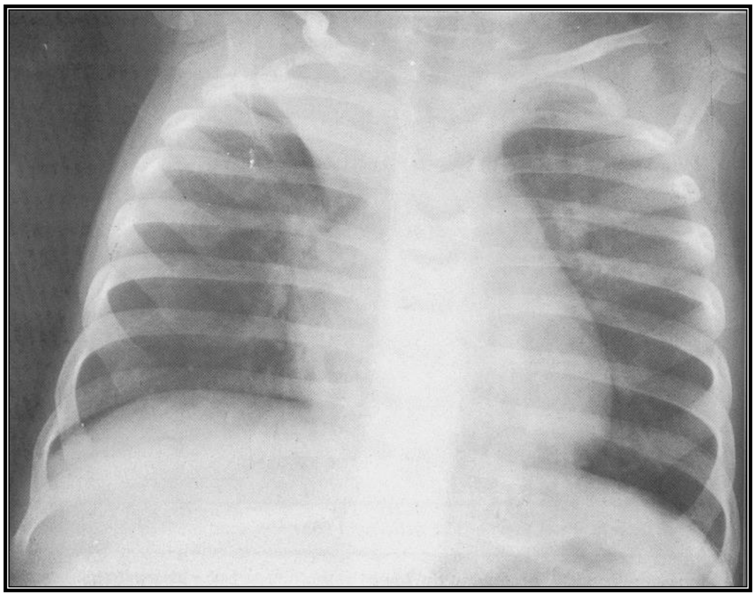
View: postero-anterior

Characteristic radiological findings. ALT

1. There is **homogenous** opacity occupying the upper lobe of the right lung
2. The opacity has concave lower border.
3. The heart and tracheal air column are shifted to the same side of the lesion (right side)
4. Compensatory emphysema of the left lung (left copula is shifted downward.)
5. Hilar congestion of the left lung

Diagnosis

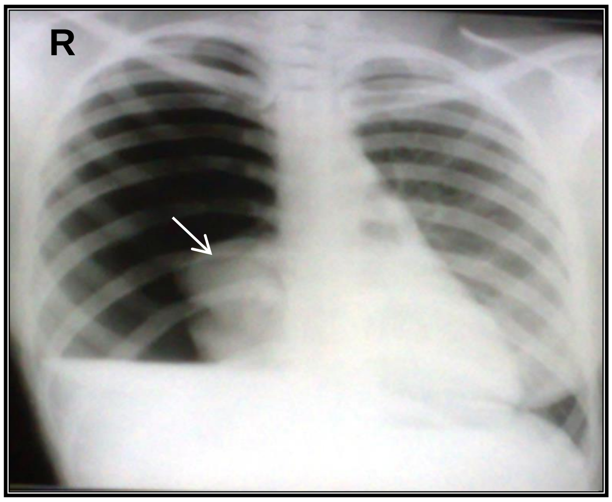
Right upper lobe collapse



Hydro or pyopneumothroax

Scenario: child presenting with fever, cough and respiratory distress with recent deterioration of vital signs.

1



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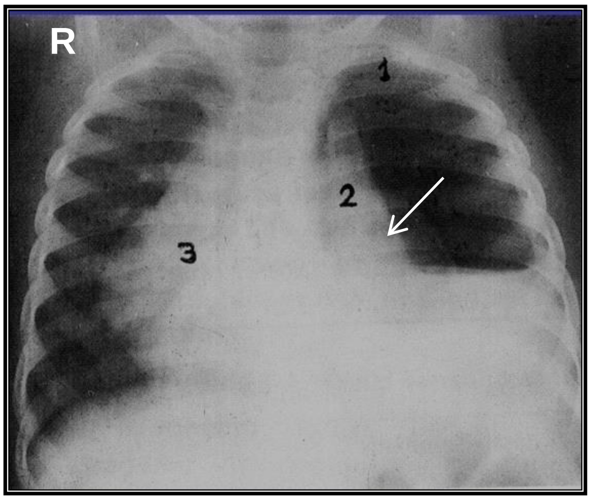


Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

1. Costophrenic angle on the RT side (left side in 2) is obliterated by homogenous opacity with transverse horizontal upper border (fluid level).
2. The remaining part of the Right (left in 2) hemithorax is jet black (air).
3. The collapsed Right(left in 2) lung appears as homogenous opacity : white arrow
4. The heart and tracheal air column are shifted to the opposite side the lesion.

Diagnosis

Right side pyopneumothorx (or hydro pneumothorax) 1

Left side pyopneumothorx (or hydro pneumothorax) 2

What is the main line of treatment in this case?

1. Underwater seal system
2. Broad spectrum antibiotics

Mention another investigation may for this case?

Thoracocentesis then (Examination of the fluid, culture and sensitivity)

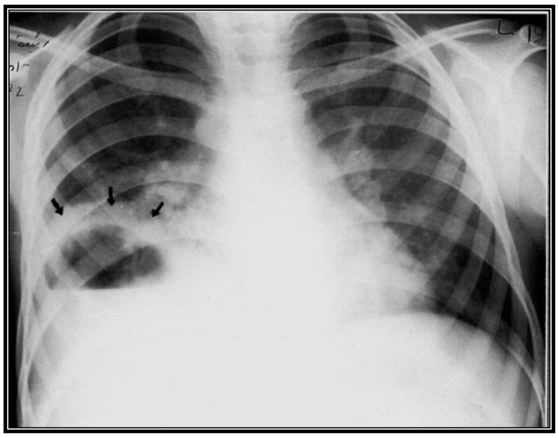
Enumerate 2 causes for this case?

1. Introduction of air during Thoracocentesis
2. Staphylococcal pneumonia

Lung abscess

Scenario: 2 years old child with high fever, and expectoration of fetid sputum

1



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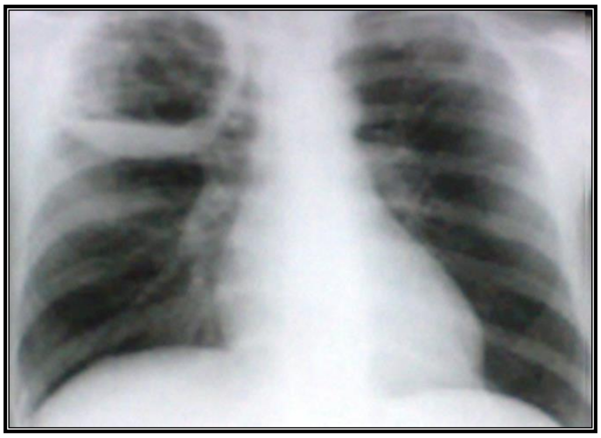


Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

1. The lower zone of the right lung in (1), the upper zone of the right lung in (2) show a cavity with well-defined thick outline (abscess wall).
2. The lower part of the lesion is homogenous with transverse upper border (fluid) while the upper part of the lesion is jet black (air).
3. The heart and tracheal air column is central.
4. Costophrenic angles in 2 is free , in 1 the right angle is obliterated(pleural effusion)

Diagnosis

Right side lung abscess and right side pleural effusion (1)
Right side lung abscess (2)

Mention 2 causes for this condition?

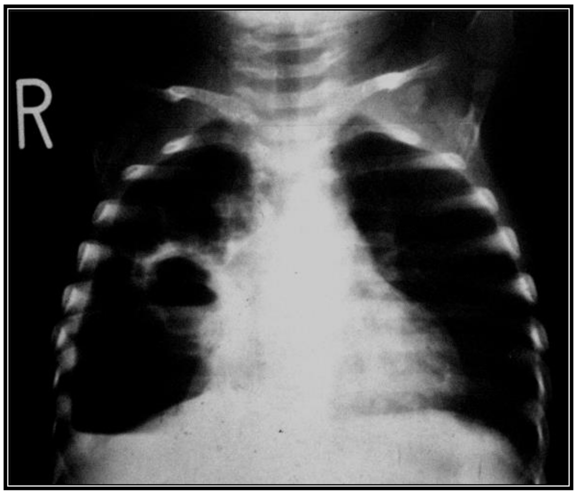
1. Aspiration of infected material or foreign body (primary lung abscess)
2. Pneumonia e.g. staph. aureus- Klebsiella

Mention another 2 important investigation for this case?

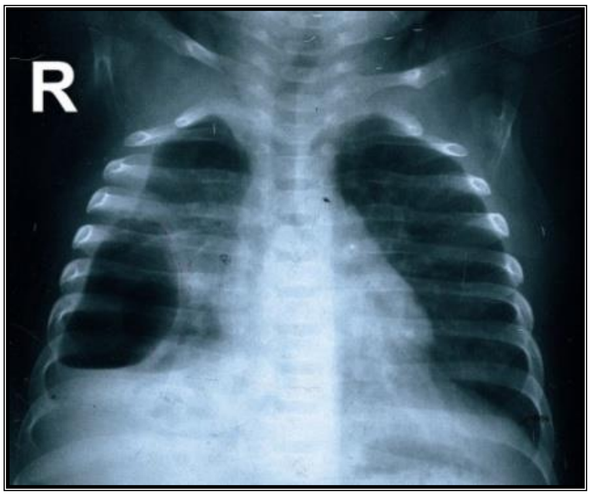
1. CT chest
2. Bronchoscopy
3. Sputum culture and sensitivity.

What is the most important line of treatment in this case?

1. Parenteral antibiotics according to culture and sensitivity test.
2. Postural drainage
3. Physiotherapy.
4. Bronchoscopy if foreign body is suspected.



1



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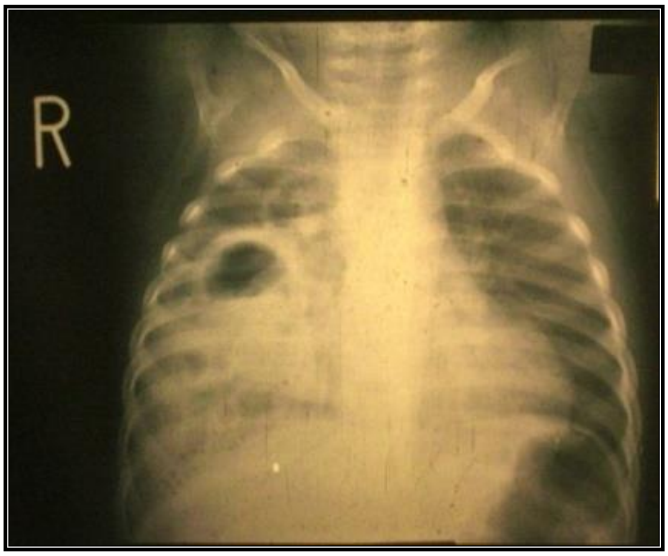


3

Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

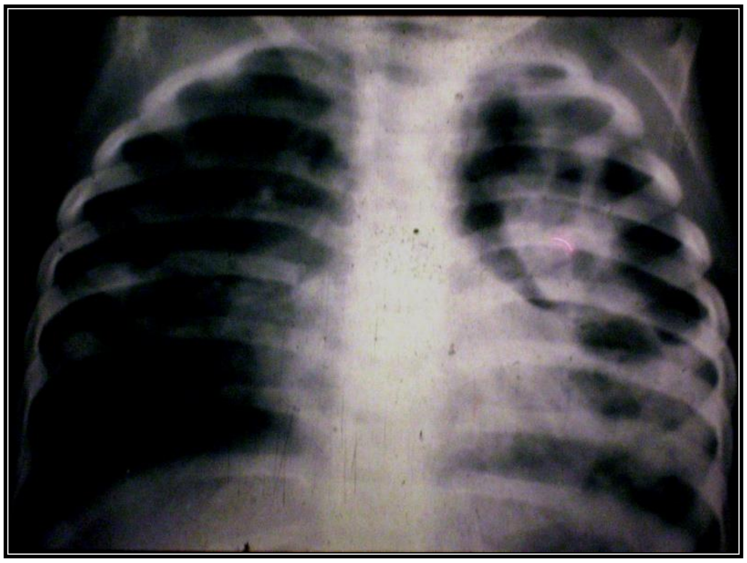
1. Costophrenic angle on the right side is obliterated by homogenous opacity rising to the axilla (pleural effusion).
2. The middle and lower zone of the right lung show a cavity with well-defined thick outline (abscess wall). The lower part of the lesion is homogenous with transverse upper border (fluid) while the upper part of the lesion is jet black (air).
3. There is also heterogonous opacity on the lower lung third(pneumonia) In **2 and 3** with multiple thin wall cyst (pneumatoceles) **in 3**
4. The heart and tracheal air column are central.

Diagnosis

(1) RT side lung abscess and RT side mild pleural effusion,
(2) RT side lung abscess, RT side mild pleural effusion and right side pneumonia
(3) RT side lung abscess, RT side mild pleural effusion, right side pneumonia and pneumatoceles. In all most probably due to staph. or Klebsiella pneumonia.

Pneumonia with pneumatoceles: very important

Scenario: Infant presenting with fever, cough and respiratory distress



Type: plain X ray chest

View: postero-anterior

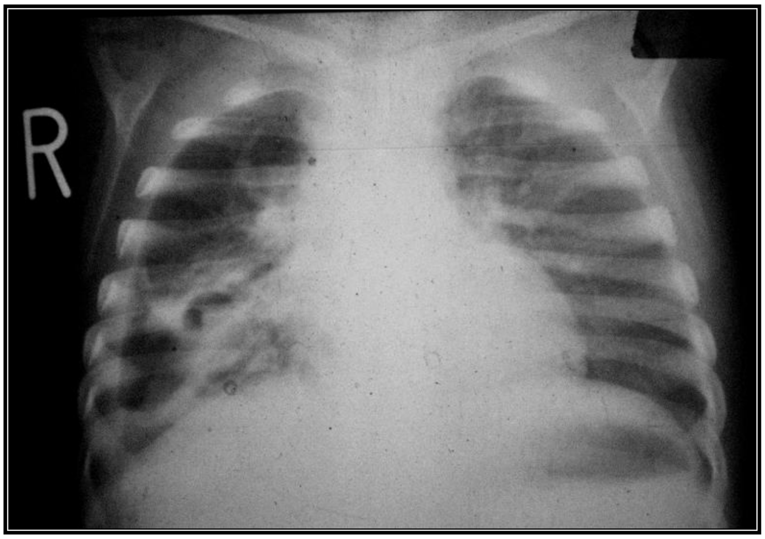
Characteristic radiological findings.

1. The middle and lower lung zones of the left lung show heterogonous opacities
2. Multiple pneumatoceles (airspace surrounded by thin wall) are present between the opacities
3. Costophrenic angle on both sides are free.
4. Central mediastinum.

Diagnosis

Left side pneumonia with pneumatoceles, the cause is most probably staphylococcal or Klebsiella pneumonia

Mention 2 lines of treatment: Oxygen and antibiotics e.g. Oxacillin or Vancomycin



1. Costophrenic angle on the right side is obliterated by homogenous opacity with upper border rising to the axilla (pleural effusion).
2. The middle and lower lung zones of the RT lung show heterogonous opacity
3. Multiple (airspace surrounded by thin wall) pneumatoceles are present in between opacities
4. Central mediastinum.

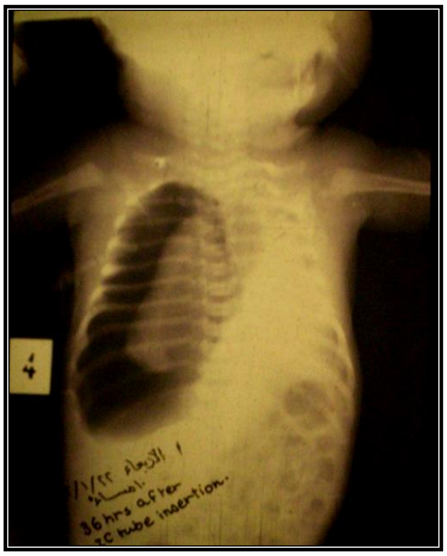
Diagnosis

RT side pneumonia with pneumatoceles and right side pleural effusion, the cause is most probably staphylococcal or Klebsiella pneumonia

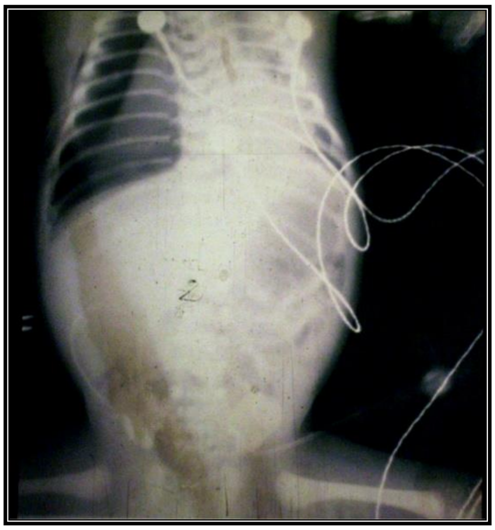
Pneumothorax: very important

Scenario: Newborn infant with severe respiratory distress on mechanical ventilation suddenly developed deterioration of vital signs

1



2



Type: plain X ray chest
View: postero-anterior

Characteristic radiological findings.

1. The right hemithorax shows jet black hypertransluscency with absent bronchovascular markings (pneumothorax).
2. The right lung is collapsed (appears as homogenous opacity shifted against the vertebral column).
3. Intercostal tube is seen on the right hemithorax draining the pneumothorax
4. The right copula of diaphragm and liver are shifted downwards.
5. The left lung shows homogenous opacity (RDS).
6. Marked shift of the heart and tracheal air column to the left side.
7. In 2 (monitor electrodes are seen).

Diagnosis

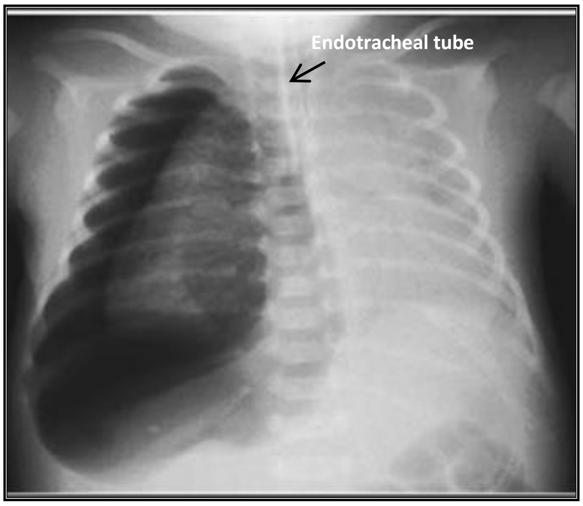
Right side pneumothorax with RT lung compression collapse, Left side white lung (RDS)

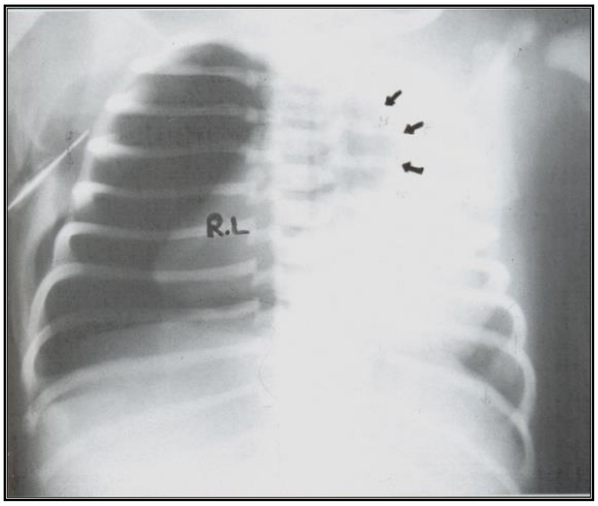
What is the immediate treatment for this case?

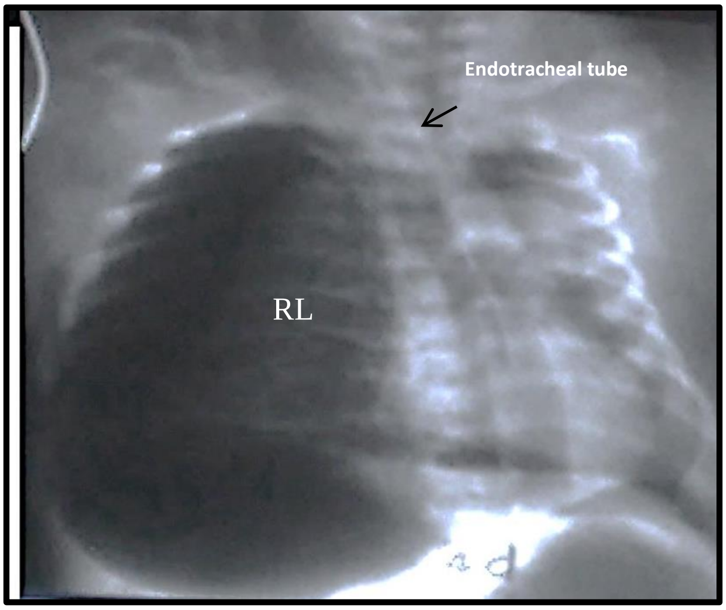
1. Intercostal tube (underwater seal system)
2. Surfactant replacement therapy (RDS treatment)
3. Oxygen therapy

Enumerate 2 causes for this condition

1. Mechanical ventilation (barotrauma)
2. Chest trauma







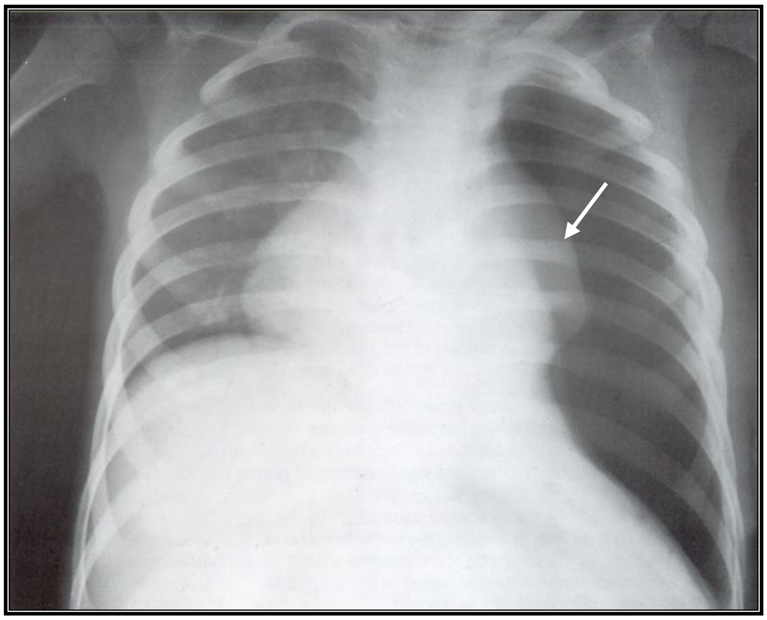
Type: plain X ray chest
View: postero-anterior

Characteristic radiological findings.

1. The right hemithorax shows jet black hypertransluscency with absent bronchovascular markings (pneumothorax).
2. The right lung is collapsed (appears as homogenous opacity shifted against the vertebral column).
2. The right copula of diaphragm and liver are shifted downwards.
3. Marked shift of the heart and tracheal air column to the left side (opposite side of the lesion).
4. The left lung shows homogenous opacity (RDS).
5. Endotracheal tube is present

Diagnosis

Right side pneumothorax with RT lung collapse, Left side white lung (RDS)



Type: plain X ray chest

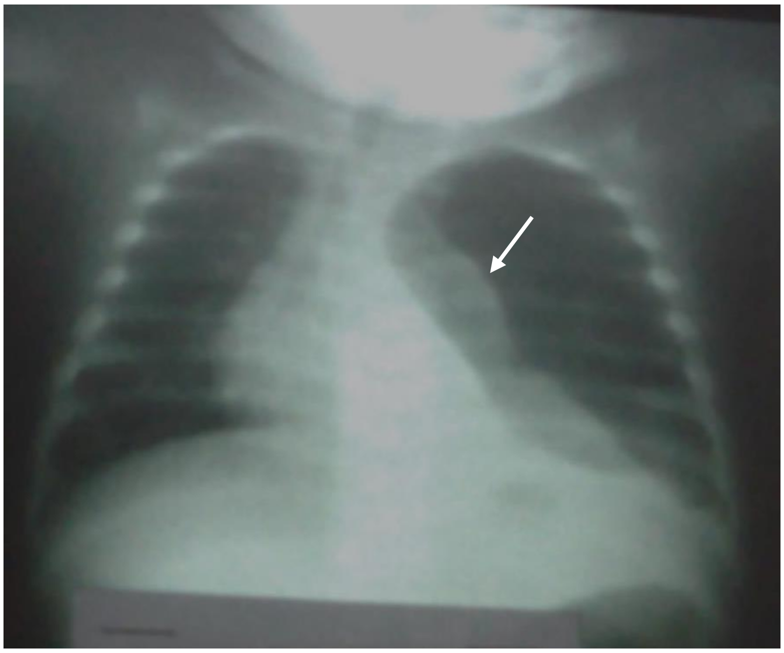
View: postero-anterior

Characteristic radiological findings.

1. The left hemithorax shows jet black hyper translucency with absent bronchovascular markings (pneumothorax).
2. The left lung appear as homogenous opacity shifted against the vertebral column (compression collapse).
3. Marked shift of the heart and tracheal air column to the right side (opposite side of the lesion).

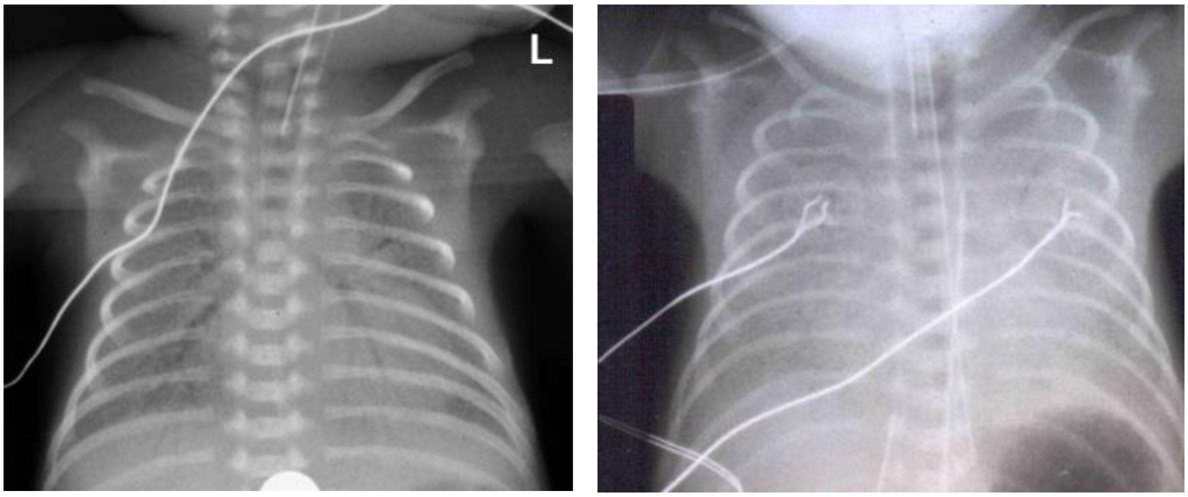
Diagnosis

Left side pneumothorax with left lung compression collapse



White lung: respiratory distress syndrome

Scenario: Preterm infant with severe respiratory distress immediately after birth



A B

Type: plain X ray chest

View: postero-anterior

Characteristic radiological findings.

1. Diffuse reticulogranular pattern in both lung fields (ground glass appearance)
2. Air bronchogram (air in the major bronchi appears in contrast with the white background of collapsed alveoli as air bronchogram) is seen in A
3. Complete opacification of both lung fields (white lung) in B
4. Central mediastinum
5. Endotracheal tube and monitoring electrodes are seen

Diagnosis: **respiratory distress syndrome**

Mention 2 lines of treatment for this case

1. Surfactant replacement therapy
2. Mechanical ventilation

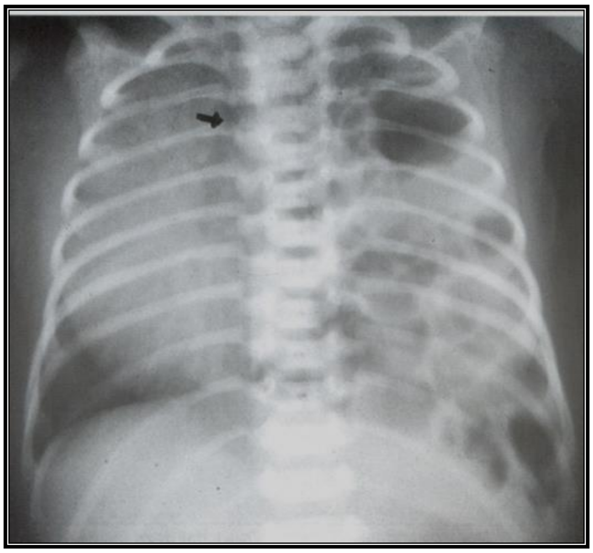
Enumerate 2 risk factors for this condition

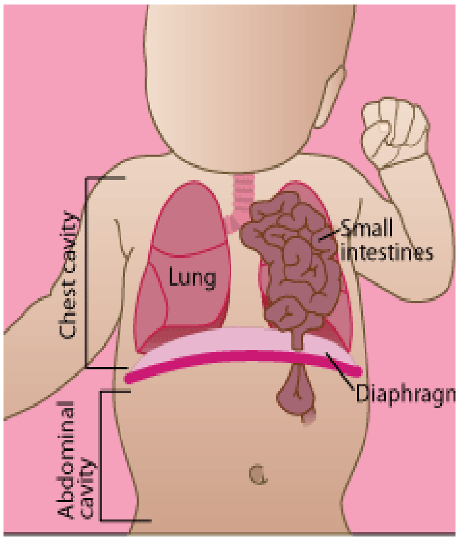
1. Prematurity
2. Maternal diabetes

Congenital diaphragmatic hernia: very important

Scenario: Newborn infant with severe respiratory distress immediately after birth

1





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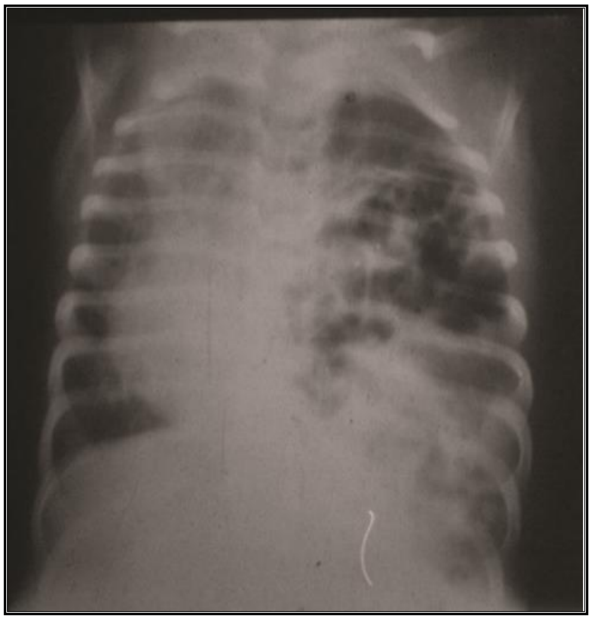

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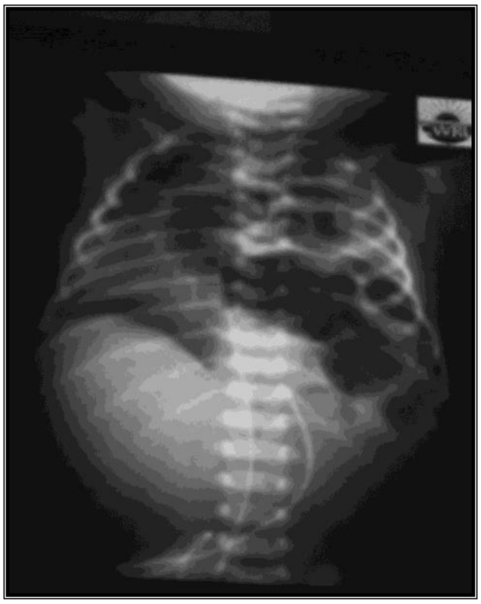


Type: plain X ray chest
View: postero-anterior

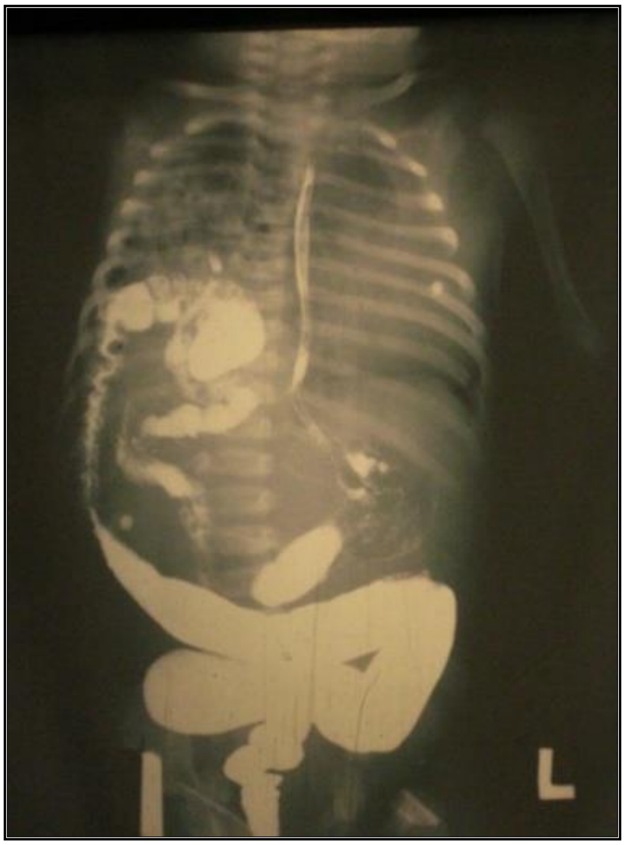
Characteristic radiological findings.

1. The left hemithorax shows heterogeneous opacities present in the lower part simulating Pneumonia,
2. Multiple radiolucent cystic shadows simulating pneumatoceles (herniated intestinal loops) are present between the opacities.
3. The heart and tracheal air column are shifted to the opposite side of the lesion (right side).
4. Nasogastric – endotracheal – umbilical catheter**)** are present in (3)

Diagnosis
Left side congenital diaphragmatic hernia

Mention 2 other clinical findings may present in this case?

1. Scaphoid abdomen
2. Respiratory distress
3. Shifted cardiac apex.



Type: X ray chest and abdomen with contrast (barium meal follow through and enema)
View: postero-anterior

Characteristic radiological findings.

1. Herniated barium filled intestinal loops in the right hemithorax
2. The upper part of the right hemithorax shows multiple heterogonous opacities (intestinal loops)
3. Shift of the heart and tracheal air column to the left side (Opposite side of the lesion)

Diagnosis

Right side congenital diaphragmatic hernia

What is the first action to do for this case in the delivery room?

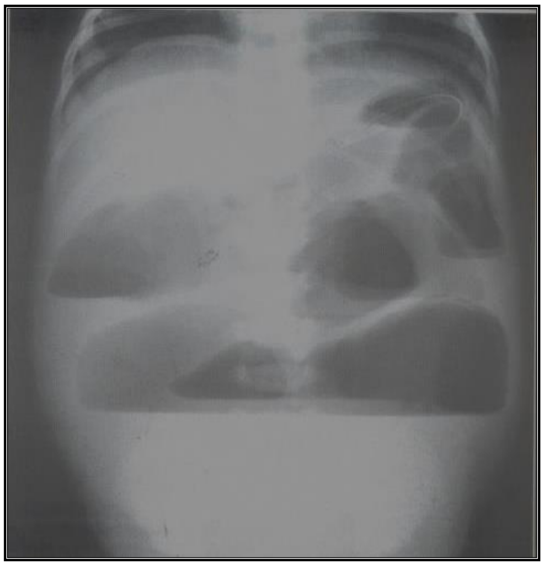
Endotracheal intubation and ventilation

GIT X ray

Intestinal obstruction

Scenario: Infant presents with persistent vomiting and abdominal distension

1



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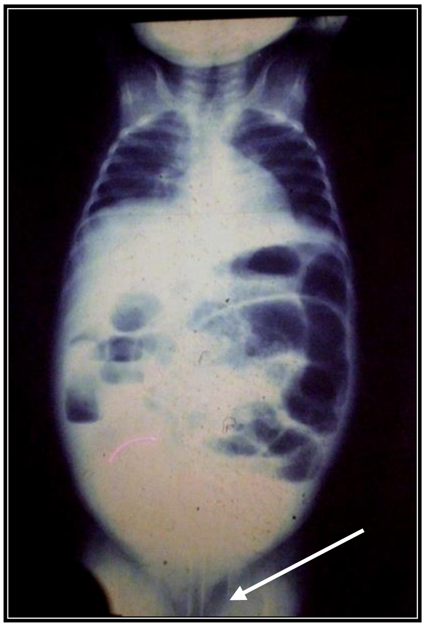


Type: Plain X ray chest and abdomen
View: postero-anterior, upright position

Characteristic radiological findings.

1. Upper loops (upper 2/3 of the intestine) are , dilated with multiple air fluid levels inside
2. Lower loops (lower 1/3 of the intestine) are not gaseous
3. The abdomen is markedly distended.
4. Rectal tube is present in 2 (white arrow)

Diagnosis

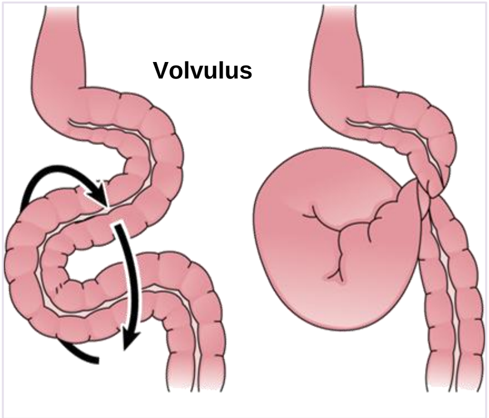
Intestinal obstruction

What is the first action to do for this case in the delivery room?

Endotracheal intubation and ventilation

Enumerate 2 possible causes for this condition

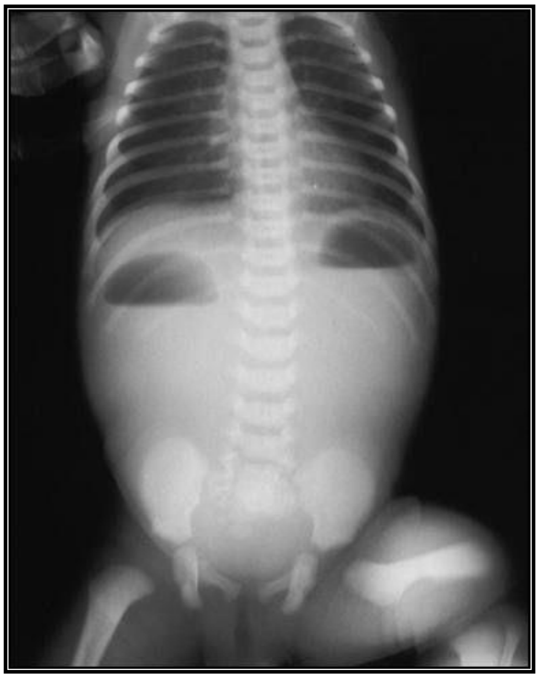
1. Volvulus
2. Obstructed inguinal hernia



Duodenal atresia

Scenario: Neonate with bilious vomiting since birth

1



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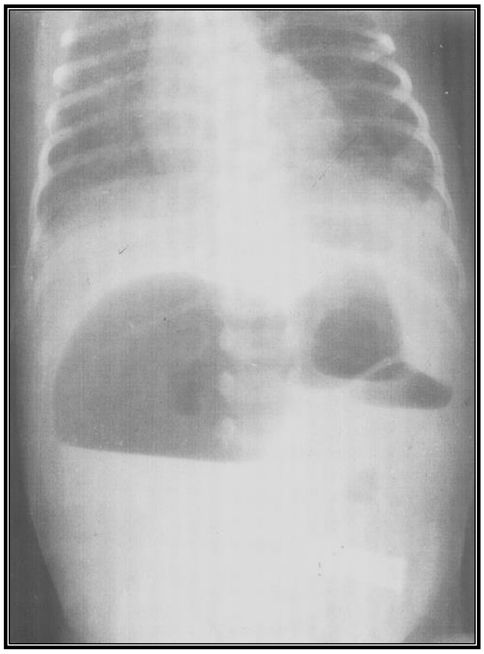


Type: Plain X ray chest and abdomen
View: postero-anterior view, upright position

Characteristic radiological findings.

1. 2 large areas with air fluid level;
   One for stomach (on the left)
   The other for duodenum (on the right). Double bubble sign
2. Lower part of the abdomen is not gaseous
3. Nasogastric tube is present in 2

Diagnosis

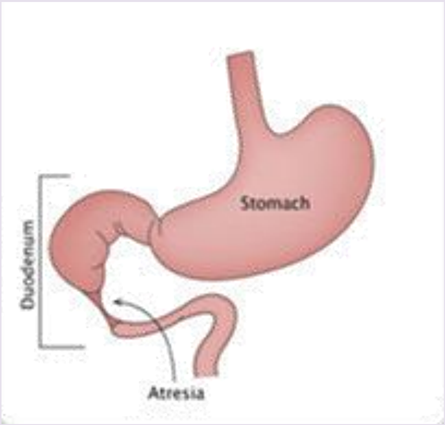
Duodenal atresia: double bubble sign

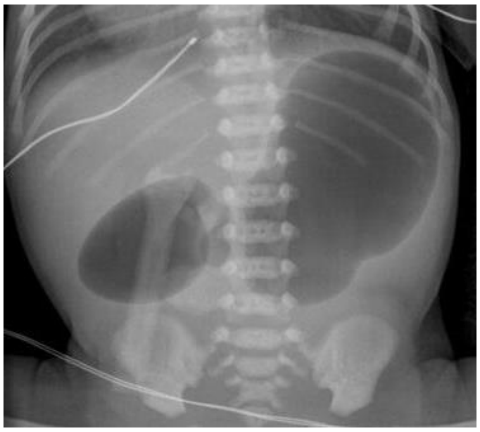
Mention 2 line of treatment for this case

1. IV fluid (correction of electrolytes imbalance).
2. Surgical correction

Mention 2 other investigations

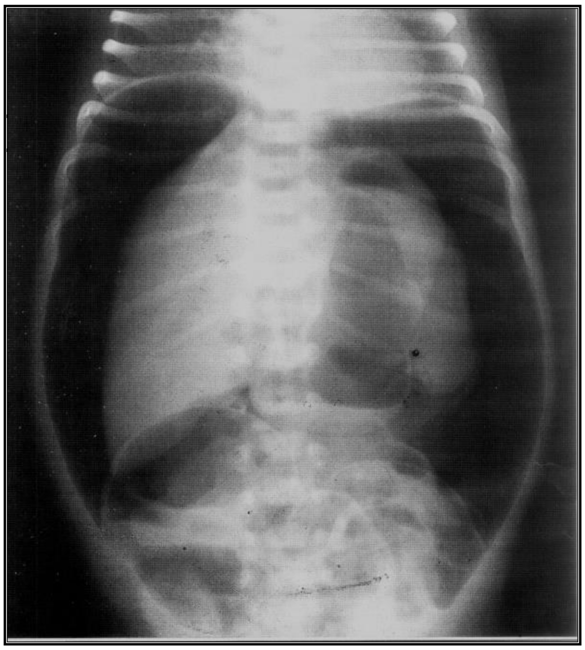
1. Abdominal ultrasound
2. Electrolytes

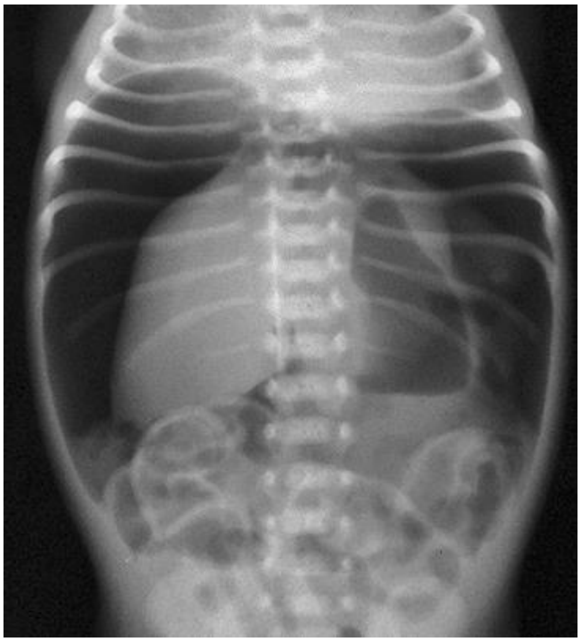




Pneumoperitoneum: very important

Scenario: Infants presents with marked abdominal distention





Type: Plain X ray chest and abdomen

View: postero-anterior view, upright position

Characteristic radiological findings.

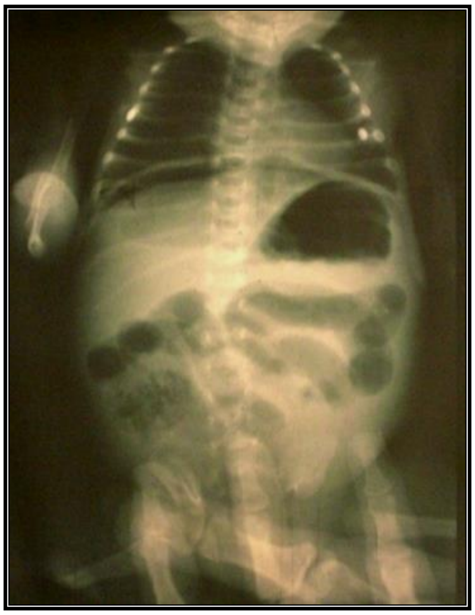
1. Free air (jet black hyper translucent area) in the peritoneal space under the diaphragm above the liver.
2. The abdominal viscera are pushed centrally by the air.
3. The abdomen is distended with gasses.

Diagnosis

Pneumoperitoneum

Mention 2 causes for this case

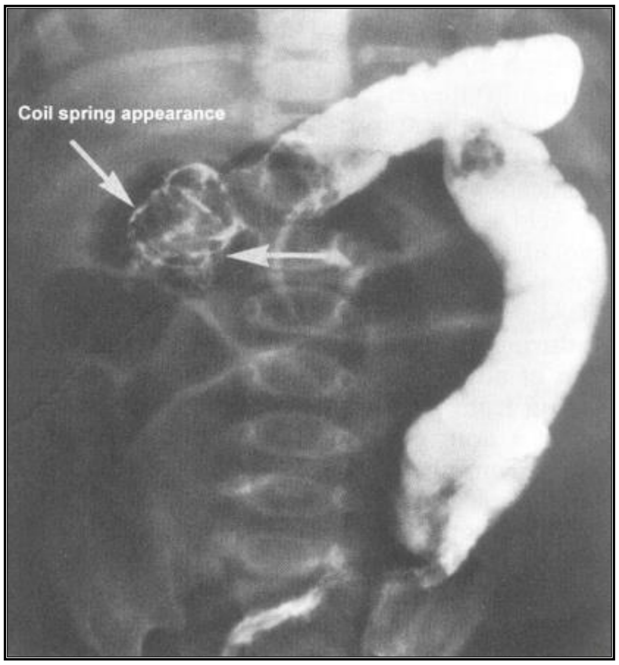
1. NEC : necrotizing enterocolitis
2. Ruptured appendix
3. Ruptured typhoid ulcer



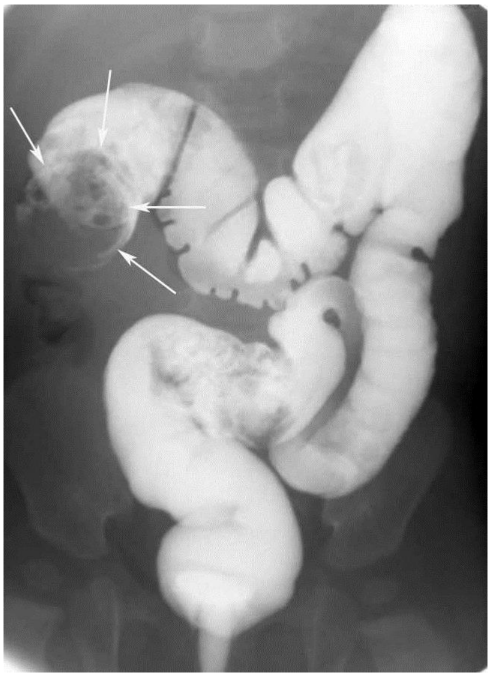
Intussusception: very important

Scenario: Infants presents paroxysmal severe abdominal pain and vomiting

1



2



Type: Lower GIT study with contrast (barium enema OR Gastrographin)
View: postero-anterior view

Characteristic radiological findings.

1. Sudden arrest of barium flow at the right hepatic flexure of the colon
2. Characteristic **coil spring appearance** due to passage of contrast between intussuscptum and intussuscipiens in (1)
   Characteristic claw hand appearance in 2 and 3 due to interruption of contrast flow
3. The remaining part of colon is not seen (the contrast couldn't pass)

Diagnosis: Intussusception

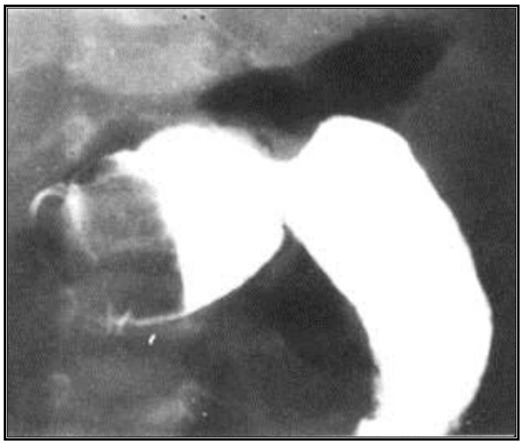
Enumerate 2 findings may present in this case

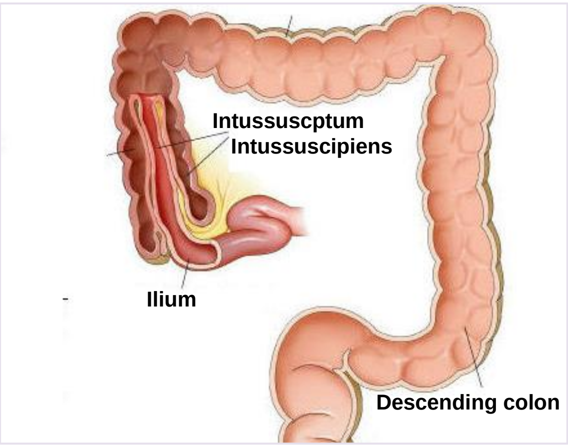
1. Sausage shaped mass in the upper right quadrant of the abdomen
2. Passage of red currant jelly stool

Enumerate 2 other investigations may be done in this case

1. Abdominal ultrasound
2. Electrolytes

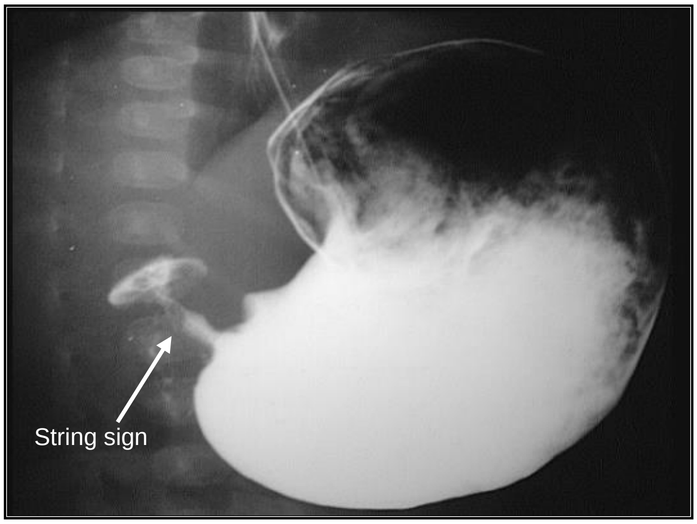
3

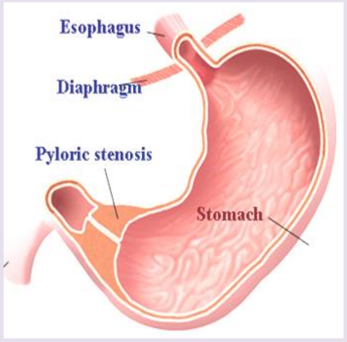




CHPS: congenital hypertrophic pyloric stenosis

Scenario: 2 months old infant with non-bilious vomiting start at the age of 3 weeks





Type: Upper GIT study with contrast (barium or Gastrographin)
View: postero-anterior view

Characteristic radiological findings

1. Markedly dilated stomach which appears full of barium.
2. The narrow pyloric canal appear as single line of barium (string sign)
3. The hypertrophied pylorus appears as rounded translucent shadow surrounding the narrow pyloric canal
4. Barium appears in the first part of the duodenum (umbrella sign)

Diagnosis: congenital hypertrophic pyloric stenosis

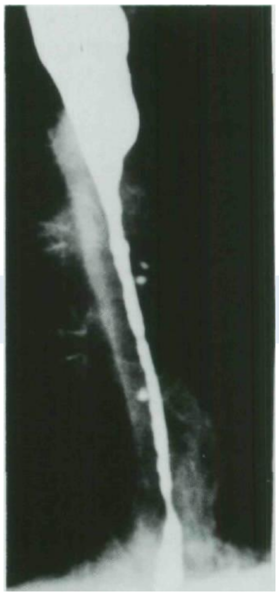
Enumerate 2 findings may present in this case

1. Olive shaped mass in epigastrium
2. Gastric peristalsis

Enumerate 2other investigations may be done in this case

1. Abdominal ultrasound
2. Electrolytes

Esophageal stricture



Scinerio: Infant present with dysphagia

Type: Upper GIT study with contrast (barium or Gastrographin)

Characteristic radiological findings

1. Normal calibre of the upper part of the esopagus.
2. Narrow lower part of the esopagus (rat tail sign)

Diagnosis: esophageal stricyture (stensosis)

Enmertae 2 causes for this condition

1. Esophageal corresive
2. GERD (gastroesophageal reflux)

Enmertae 2 complications

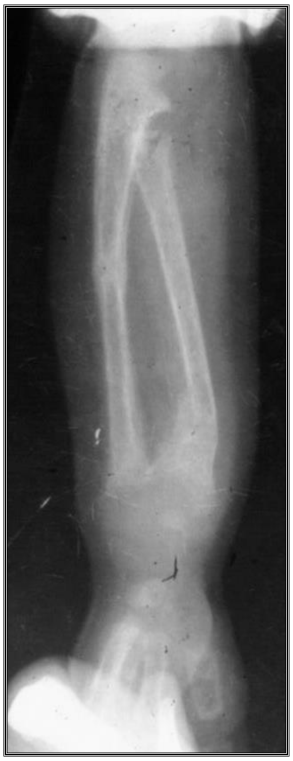
1. Perfioration
2. Failure to thrive

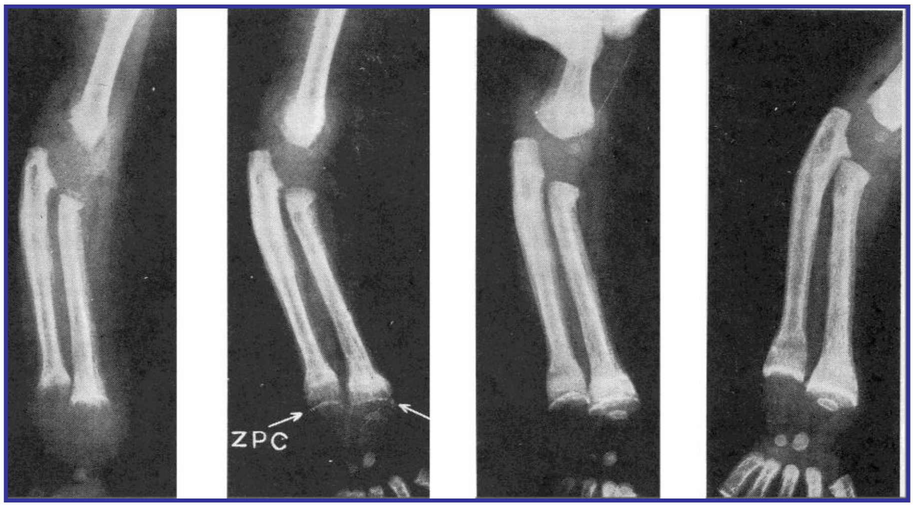
Enmertae 2 lines of traetment

1. Esophageal dilatation
2. Surgical corection

Bone and skull X ray (not in Cairo university exam)

Rickets





Active **Healing** **Healing** **Healing**

Active rickets

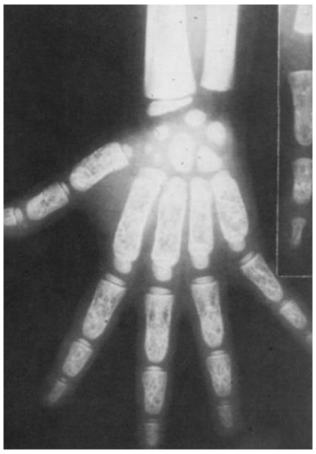
Plain X ray of the lower limbs (ankle and knee joints)

1. Wide joint space
2. Cupping of the metaphyseal area with frayed epiphyseal line
3. Decreased bone density
4. Bowing deformities

Healing rickets

in healing rickets the same comment but instead of frayed epiphyseal lineline (appearance of line pf provisional calcification)

Chronic hemolytic anemia

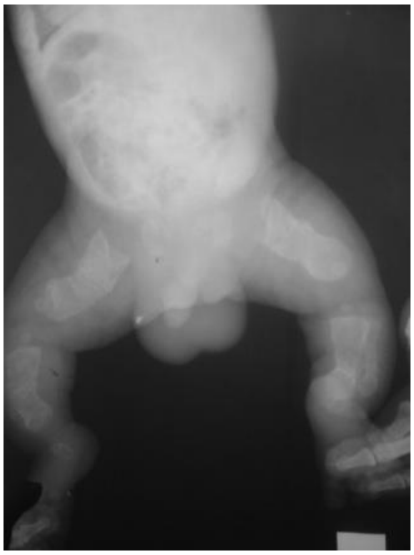


Plain X ray wrist joint

1. Metacarpal bones show: -
   - Loss of waist.
   - Thin cortex
   - Wide medulla with mosaic appearance
2. Decreased bone density (osteoporosis)

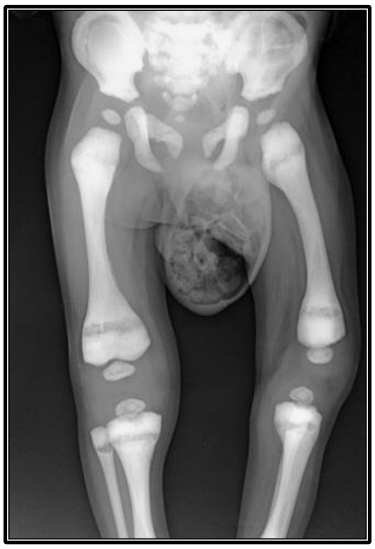
Osteogenesis imperfecta

1. Marked decrease in the bone density
2. Loss of differentiation between medulla and cortex
3. Multiple fractures with mal union
4. Marked bone deformities

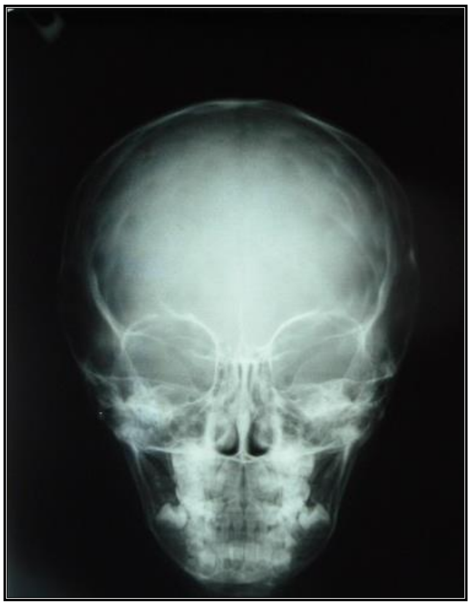


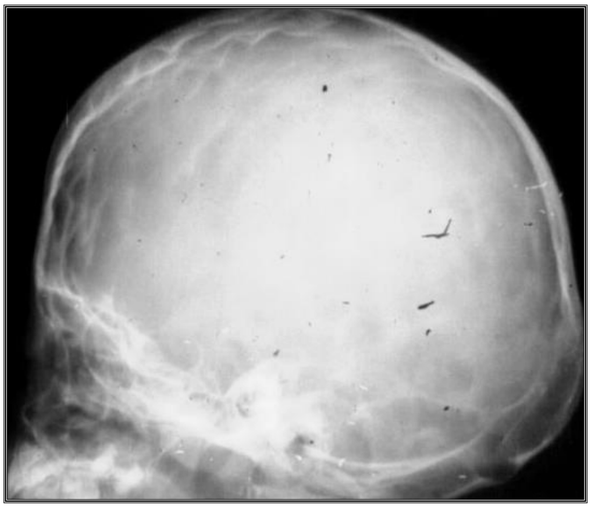
Osteopetrosis: marble bone disease

1. Marked increase in bone density
2. Loss of differentiation between medulla and cortex (Absent medullary cavity)



Craniostenosis (increased tension with closed sutures)





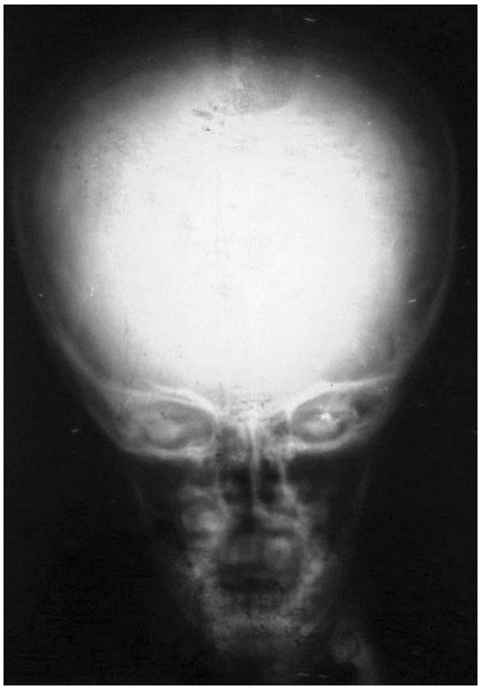
Skull anteroposterior and lateral view

1. Craniofacial disproprtion
2. Silver beaten appearance

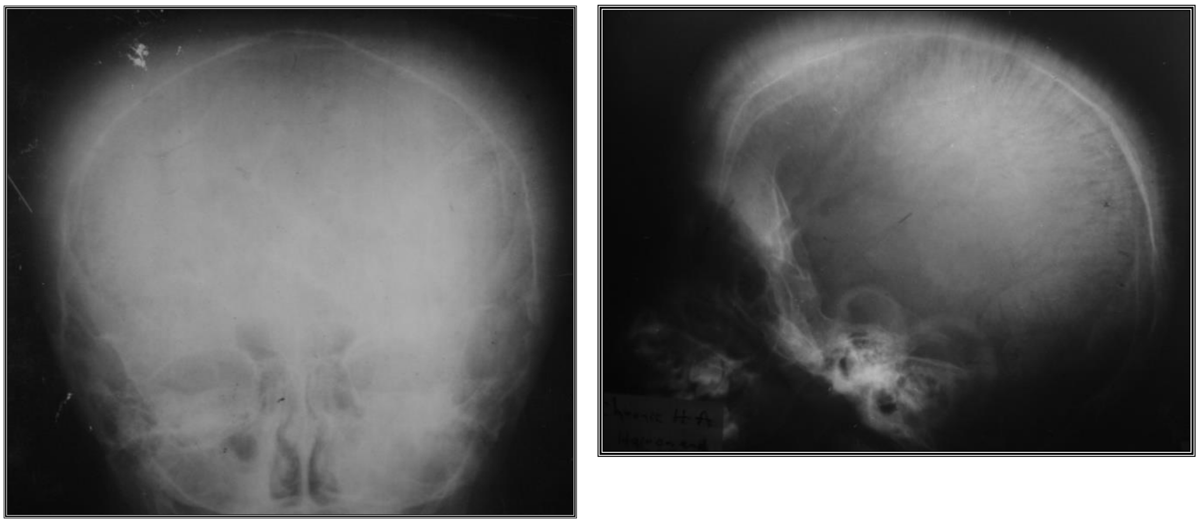
Increased intracranial tension (hydrocephalus)

Skull anteroposterior view

1. Marked Cranifacial disproportion
2. Seperated cranial sutures



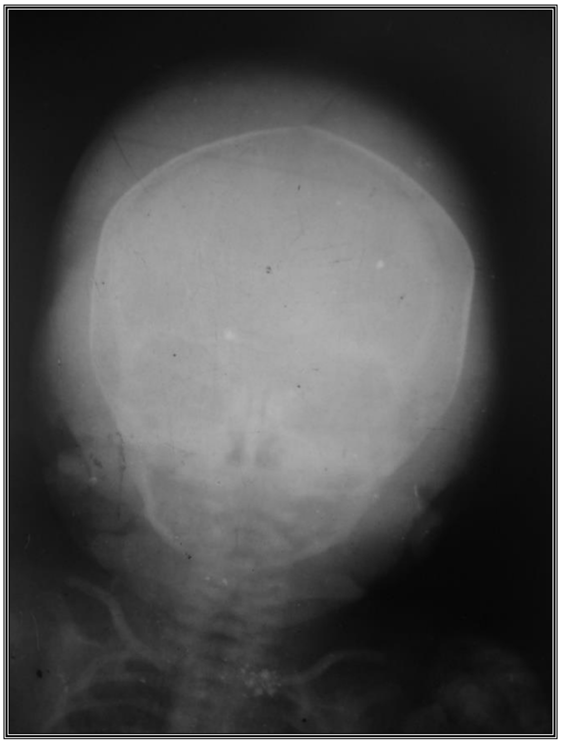
Chronic hemolytic anemia



Skull anteroposterior and llateral view

1. Hair on end appearance
2. Wide diploic space
3. Decreased bone density

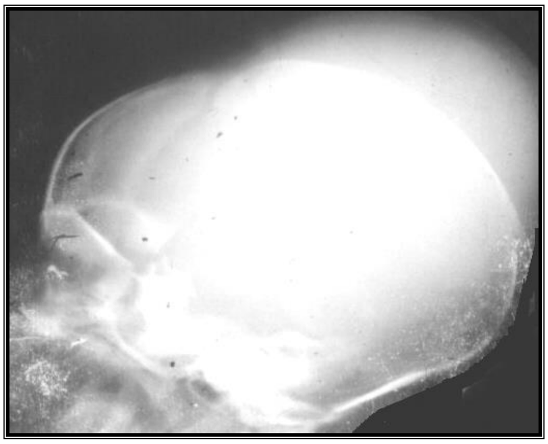
Caput succedaneum



Skull anteroposterior view

1. Diffuse swelling over the skull crossing the suture line
2. Normal craniofacial ratio

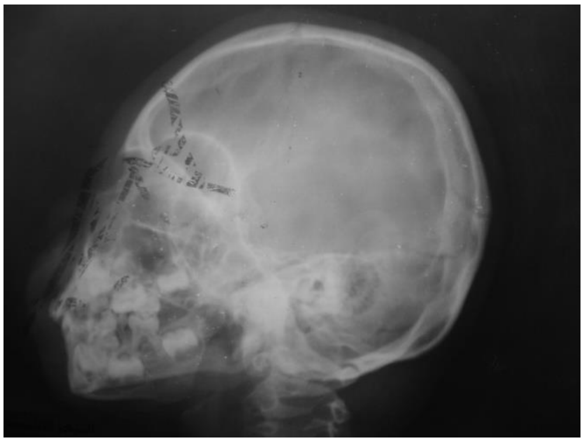
Cephalhematoma



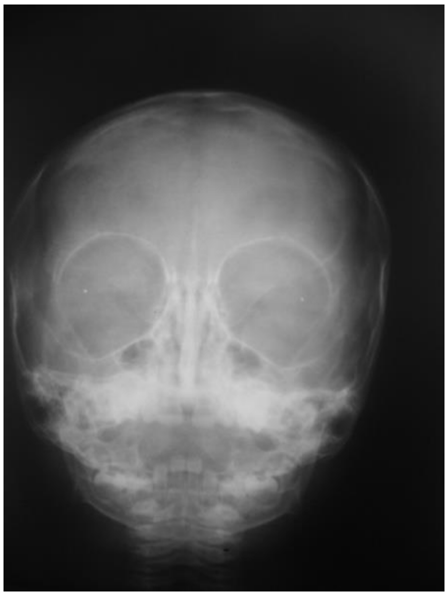
Skull Lateral view

1. Localized swelling over the parietal l bone
2. The swelling is not crossing the suture lines
3. Normal craniofacial ratio

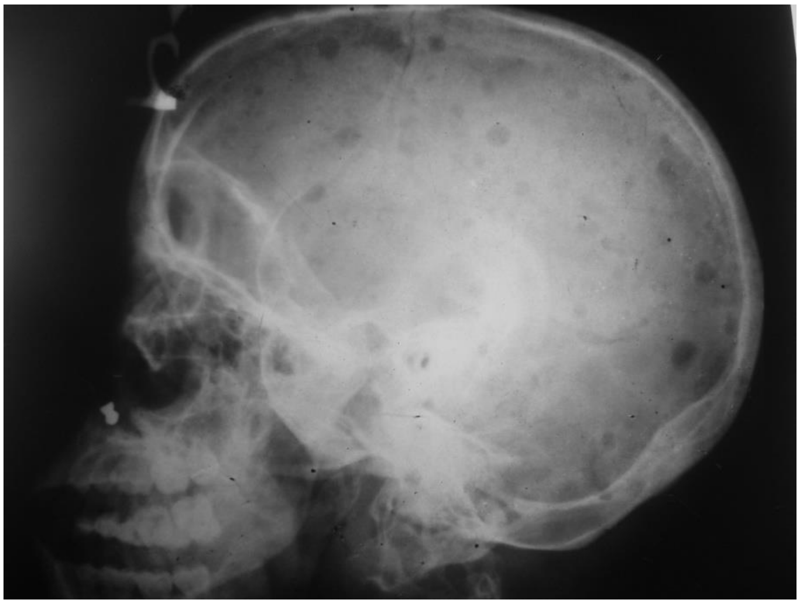
Microcephaly



Decreased cranifacial proportion(1:1)
Enumerte 2 causes : cerebral palsy – familia



Skull defects



Skull Lateral view

1. Multiple skull defects (mouse eaten appaeance)
2. The cause may be leukemia or histocytosis